

BEFORE THE GOVERNING BOARD OF THE
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

ORDER NO. SWF 19-007

POLK REGIONAL WATER COOPERATIVE,
POLK COUNTY, CITY OF BARTOW,
CITY OF FORT MEADE, CITY OF LAKE LAND,
CITY OF WAUCHULA, and CITY OF WINTER HAVEN

Petitioners,

vs.

PEACE RIVER MANASOTA REGIONAL
WATER SUPPLY AUTHORITY, and
SOUTHWEST FLORIDA WATER
MANAGEMENT DISTRICT,

DOAH Case Nos.	18-3276
	18-3278
	18-3280
	18-3282
	18-3283
	18-3288
	18-3289

Respondents.

FINAL ORDER

THIS CAUSE was heard by the Governing Board of the Southwest Florida Water Management District ("District") pursuant to Sections 120.57(1)(i) and Chapter 373, Part II, Florida Statutes ("F.S.") and the rules promulgated thereunder in Chapter 40D-2, Florida Administrative Code ("F.A.C.") for the purpose of issuing a final order in the above-styled proceeding.

FINDINGS OF FACT

1. On October 2, 2017, the Peace River Manasota Regional Water Supply Authority ("Authority") submitted Water Use Permit Application No. 20010420.010 to the District seeking a modification and renewal of Water Use Permit No. 20010420.009 ("Application"). The Application requested an increase of surface water withdrawals from the Lower Peace River from the permitted 34.855 million gallons per day ("MGD") to 80

MGD on an annual average basis, and from the current maximum daily basis of up to 120 MGD to up to 258 MGD, for public supply use. The Application also requested an extension of the permit duration for 50 years through 2068.

2. The District evaluated the Application in accordance with Chapter 373, Part II, F.S., and the rules promulgated thereunder in Chapter 40D-2, F.A.C.

3. On April 24, 2018, the District issued a Notice of Proposed Agency Action recommending approval of the Application and issuance of Water Use Permit 20010420.010 ("Permit").

3. From May 14, 2018 to May 21, 2018, the Polk Regional Water Cooperative, Polk County, the City of Bartow, the City of Fort Meade, the City of Lakeland, the City of Wauchula, and the City of Winter Haven (collectively referred to as "Petitioners") timely filed Petitions for Formal Administrative Hearing with the District challenging the District's intent to issue the Permit to the Authority (Petitions").

4. On June 25, 2018, the Petitions were referred to the Division of Administrative Hearings ("DOAH") for further proceedings. Prior to the final hearing, the Petitioners and the Authority entered into a settlement agreement to resolve the issues raised in the Petitions by making minor edits and adding a condition to the Permit ("Proposed Permit"). A copy of the settlement agreement is attached hereto and incorporated herein by reference as Exhibit "A-1," and the Proposed Permit is attached hereto and incorporated herein by reference as Exhibit "A-2."

6. On January 28, 2019, the Petitioners, Authority, and District ("Parties") jointly moved for the entry of an order relinquishing jurisdiction of the matter from DOAH back to the District and closing the file with the DOAH. The Administrative Law Judge

granted this motion on January 30, 2019, and jurisdiction was relinquished back to the District.

7. This matter then came before the District for review of the Proposed Permit and resolution of the Petitions.

8. District staff reviewed the proposed revisions to the Permit and determined that the Proposed Permit as revised meets the criteria for issuance of a water use permit established in Chapter 373, Part II, F.S., and Chapter 40D-2, F.A.C.

CONCLUSIONS OF LAW

9. The District has jurisdiction over the Parties and the subject matter of this proceeding pursuant to Section 120.57(1)(i) and Chapter 373, Part II, F.S., following the Administrative Law Judge's order relinquishing jurisdiction of this matter to the District.

10. The scope of the District's authority over this matter is to determine whether additional proceedings are required to arrive at final agency action. See § 120.57(1)(i), F.S. (stating "If the administrative law judge enters an order relinquishing jurisdiction, the agency may promptly conduct a proceeding pursuant to [Section 120.57(2), F.S.], if appropriate").

11. If additional proceedings are not required, the District may close this administrative proceeding by entering a final order. See § 120.57(4), F.S.

12. The disputed material facts in these cases were resolved via stipulations in the Petitioners' and Authority's settlement agreement. Therefore, any additional administrative proceeding is unnecessary and inappropriate. The purpose of a Chapter 120, F.S., administrative proceeding is to formulate final agency action. See *Young v. Dep't of Community Affairs*, 625 So. 2d 831, 833 (Fla. 1993) (quoting *McDonald v. Dep't*

of *Banking & Fin.*, 346 So. 2d 569, 584 (Fla. 1st DCA 1977). The Petitioners' and Authority's resolution of all disputed material facts obviates the need to conduct an additional administrative proceeding to formulate final agency action.

13. Therefore, the District has reviewed the Proposed Permit and determined that it meets the criteria for issuance of a water use permit established in Chapter 373, Part II, F.S., and Chapter 40D-2, F.A.C.

STATEMENT OF THE ORDER

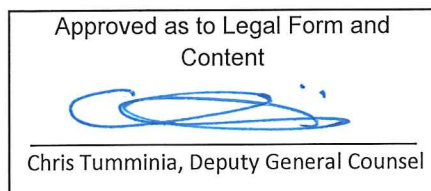
Based upon the foregoing Findings of Fact and Conclusions of Law, **IT IS ORDERED:**

1. The Petitions for Administrative Hearing filed by the Polk Regional Water Cooperative, Polk County, the City of Bartow, the City of Fort Meade, the City of Lakeland, the City of Wauchula, and the City of Winter Haven are **DISMISSED WITH PREJUDICE**.

2. The Proposed Permit attached as Exhibit "A-2" is approved and Water Use Permit No. 20010420.010 is **ISSUED**.

DONE AND ORDERED on February 26th, 2019, in Tampa, Florida.

SOUTHWEST FLORIDA WATER
MANAGEMENT DISTRICT



By:

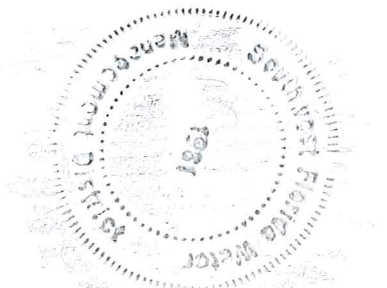

Jeffrey M. Adams, Chair

Attest:


Bryan K. Beswick, Secretary

Filed this 26th day of
February, 2019.


Deputy Agency Clerk



NOTICE OF RIGHTS

In accordance with Section 120.569(1), F.S., a party who is adversely affected by final agency action may seek judicial review of the action in the appropriate District Court of Appeal pursuant to Section 120.68, F.S., by filing a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, within thirty (30) days after the rendering of the final action by the District.

Copies furnished to:

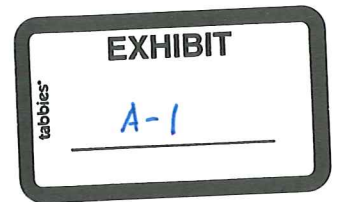
Douglas P. Manson, Esq.: Dmanson@MansonBolves.com
Amy Wells Brennan, Esq.: Abrennan@MansonBolves.com
Counsel for Peace River Manasota Regional Water Supply Authority

Ralph A. DeMeo, Esq.: RDeMeo@bakerdonelson.com
Lauren M. Brooks, Esq.: LBrooks@bakerdonelson.com
Counsel for City of Bartow, Florida

Thomas A. Cloud, Esq.: Thomas.cloud@gray-robinson.com
Jason A. Zimmerman, Esq.: Jason.zimmerman@gray-robinson.com
Counsel for City of Fort Meade, Florida and City of Wauchula, Florida

Segundo J. Fernandez, Esq.: Sfernandez@ohfc.com
Timothy Atkinson, Esq.: Tatkinson@ohfc.com
Timothy Perry, Esq.: Tperry@ohfc.com
Counsel for City of Lakeland, Florida

Edward P. de la Parte, Jr., Esq.: Edelaparte@dgfirm.com
Nicolas Q. Porter, Esq.: Nporter@dgfirm.com
Counsel for Polk Regional Water Cooperative, Polk County, Florida, and Winter Haven, Florida



PEACE RIVER COOPERATION SETTLEMENT AGREEMENT

THIS PEACE RIVER COOPERATION SETTLEMENT AGREEMENT (the "Agreement") is entered into between the Peace River/Manasota Regional Water Supply Authority (the "Authority"), the Polk Regional Water Cooperative (the "Cooperative"), Polk County, the City of Bartow, the City of Fort Meade, the City of Lakeland, the City of Wauchula and the City of Winter Haven (collectively, the "Parties" and may also be referred to as the "Petitioners" or "Litigants," as defined herein) with the Effective Date of the Agreement, as described herein.

WHEREAS, Peace River is one of the largest watercourses in the State of Florida, about 105 miles in length with a watershed covering approximately 2,350 square miles; and

WHEREAS, the Southwest Florida Water Management District ("District") has established minimum flows pursuant to Sections 373.042 and 373.0421, Florida Statutes in Florida Administrative Code Rules 40D-8.041(5), (7) and (8); and

WHEREAS, one of the minimum flows established by the District for the Lower Peace River in Florida Administrative Code Rule 40D-8.041(8)(b) limits the total permitted maximum withdrawals from the Lower Peace River on any given day to 400 cubic feet per second ("cfs") or 258 million gallons a day ("mgd") ("MFL Maximum Daily Withdrawal"); and

WHEREAS, the Authority currently withdraws water from the Lower Peace River pursuant to Water Use Permit No. 20010420.009 (the "Existing Permit"), which was issued by the District on August 25, 2015, and which authorizes the Authority to produce water for its customers at an annual average use of 34.855 mgd and a peak month use of 41.852 mgd, and to withdraw water from the Lower Peace River at a maximum day withdrawal of 120 mgd through October 1, 2037; and

WHEREAS, Polk County is a political sub-division of the state of Florida and the Cities of Bartow, Fort Meade, Lakeland, Wauchula and Winter Haven are municipal corporations of the state of Florida; and

WHEREAS, on October 2, 2017, the Authority applied to the District for Water Use Permit No. 20010420.010 (the "Proposed Permit"), which requested renewal and modification of its Existing Permit to increase the maximum day withdrawal from the Lower Peace River from 120 mgd to 258 mgd ("Maximum Daily Quantity") and extend its permit duration from 37 years to 50 years; and

WHEREAS, on April 24, 2018, the District issued a Notice of Agency Action to approve the Proposed Permit with an annual average use of 80 mgd and a maximum day withdrawal from the Lower Peace River of 258 mgd with an expiration date of May 22, 2068; and

WHEREAS, on May 10, 2018, the Cooperative submitted Water Use Permit Application No. 20020758.000, requesting to withdraw 18 mgd of surface water from the Upper Peace River for public supply use ("Peace River and Land Use Transition Project"); and

WHEREAS, on June 15, 2018, the Cooperative submitted Water Use Permit Application No. 20020762.000, requesting to withdraw and/or divert 12 mgd of surface water from Peace Creek for public supply use and environmental augmentation ("Peace Creek Integrated Water Supply Project"); and

WHEREAS, the Cooperative, Polk County, the City of Bartow, the City of Fort Meade, the City of Lakeland, the City of Wauchula and the City of Winter Haven (the "Petitioners") timely filed petitions for hearing with the District challenging the Proposed Permit, which were referred by the District to the Florida Division of Administrative Hearings ("DOAH"), where they were assigned Case Nos. 18-3276, 18-3278, 18-3280, 18-3282, 18-3283, 18-3288 and 18-3289 and consolidated for final hearing (the "Litigation"); and

WHEREAS, the Litigation was scheduled for a final hearing starting on January 28, 2019, but the hearing was canceled and the Litigation placed in abeyance for 45 days in order to allow the Petitioners, the Authority and the District (the "Litigants") to settle this matter; and

WHEREAS, the Litigants desire to completely settle, release and discharge all claims among themselves regarding the Litigation; and

WHEREAS, the Authority desires to modify the Proposed Permit, as more specifically set forth in this Agreement, to enable the Cooperative to develop projects to withdraw water from the Peace Creek for natural system restoration and potable use, and from the Upper Peace River for storage in reservoirs or other approved consumptive uses ultimately for potable use; and

WHEREAS, the Authority supports the efforts of the Cooperative to develop projects to withdraw or store water from the Upper Peace River and Peace Creek, as more specifically set forth in this Agreement; and

NOW THEREFORE, in consideration of the mutual covenants and conditions contained herein and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Parties agree, as follows:

I. EFFECTIVE DATE. This Agreement shall become effective on the date it is duly executed by all the Parties. The last date of execution by all the Parties shall be known as the "Effective Date" of this Agreement.

II. CONTINGENT. This Agreement is contingent upon the District issuing the Authority a permit in substantially the same form and exactly the same language for Special Condition 17 as contained within the attached Exhibit 1 ("Final Permit"). The Final Permit differs from the Proposed Permit only with regards to the modifications specified in Article V.a.

III. DURATION. This Agreement shall remain in effect for 50 years from the date of the issuance of the Final Permit.

IV. JOINT MOTION AND DISMISSAL OF THE LITIGATION. Within 5 days of the Effective Date, the Litigants shall file a joint motion attaching this Agreement in the Litigation requesting the Administrative Law Judge to relinquish jurisdiction to the District. This will allow the District to enter a Final Order issuing the Final Permit and closing the case. Upon the District taking final agency action approving the Final Permit, the Petitioners agree that their petitions for hearing in the Litigation are by this Agreement dismissed with prejudice, with each Litigant to bear its own attorney's fees and costs.

V. PROPOSED AUTHORITY PERMIT.

a. Modification of Proposed Permit. The Parties agree to these modifications of the Proposed Permit (i.e., the Final Permit):

- i. The asterisk appearing under the box titled "Total Quantities Authorized Under This Permit (in gallons per day)" shall be replaced with the following: "The actual quantities authorized under this permit are based on flows in the Lower Peace River as described in Special Condition No. 4. The annual average quantity shown above reflects the amount of potable water projected to be produced by the Peace River Water Treatment Plant for delivery to the Authority's Customers. The maximum day quantity shown above is subject to Special Condition No. 17."
- ii. The first sentence in Special Condition 4 shall be replaced with the following: "The quantities withdrawn from the Lower Peace River are limited by the adopted Minimum Flow for the Lower Peace River, the diversion schedule described below, Maximum Daily Quantity of 258 MGD; and as set forth in Special Condition No. 17."

iii. A new Special Condition 17 shall be added stating the following: "The Maximum Daily Quantity shall be reduced by up to 48 MGD to be credited against impact, if any, from the proposed permitted withdrawal by the Polk Regional Water Cooperative ("Cooperative") from Peace Creek for natural system restoration and potable supply or from the Upper Peace River in Polk County for storage in reservoirs or other approved consumptive uses ultimately for potable use. The District shall determine the reduction to the Maximum Daily Quantity up to 48 MGD necessary to offset impacts, if any, from the Cooperative's proposed permitted withdrawals and notify the Authority. Within 30 days of the District's notification, the Authority shall submit a letter modification to the District to reduce the Maximum Daily Quantity by specified amount up to 48 mgd. The letter modification shall specify that the reduction shall take effect immediately upon notification by the Cooperative to the District and the Permittee of the actual withdrawal of water by the Cooperative from Peace Creek or the Upper Peace River. If the Cooperative does not receive a notice of intent to issue a water use permit to withdraw water from Peace Creek or the Upper Peace River within 10 years of the issuance date of this Permit, then no reduction pursuant to this condition will occur.

b. Authority's Obligation to Modify Final Permit. Should the District determine that the Maximum Daily Quantity in the Final Permit must be reduced by up to 48 mgd to offset impacts from the Cooperative's proposed permitted withdrawals from Peace Creek for natural system restoration and potable supply or from the Upper Peace River in Polk County for storage in reservoirs or other approved consumptive uses ultimately for potable use, the Authority shall within 30 days of the District's notification submit a letter modification to reduce the Maximum Daily Quantity by the specified amount up to 48 mgd. The

Authority's letter modification application shall specify that the reduction in the Maximum Daily Quantity shall take effect immediately upon notification by the Cooperative to the District and the Authority of the actual withdrawal by the Cooperative from Peace Creek or the Upper Peace River. If the Cooperative does not receive a notice of intent to issue a water use permit to withdraw water from Peace Creek or the Upper Peace River within 10 years of the issuance date of the Final Permit, then the Authority shall no longer be required to apply to the District for a letter modification to reduce the Maximum Daily Quantity.

- c. Future Modification to Maximum Daily Quantity. Except as specified in Article VII, the Authority shall not apply for any change to the Final Permit that modifies the revised permit conditions to increase the Maximum Daily Quantity or lower the Maximum Daily Quantity reduction amount of up to 48 MGD as set forth in Special Condition 17 for the first 10 years of the Final Permit.
- d. Future Modifications to Diversion Schedule. The Authority shall advise the Cooperative prior to applying to the District for future amendments, modifications or renewals of the Final Permit that relate to the subject matter of this Agreement in order to avoid any potential unforeseen conflict between the Authority's and the Cooperative's proposed use of Peace Creek or the Upper Peace River. In addition to providing the Authority with copies of any submittal in support of the pending Water Use Permit Application Nos. 20020758.000 and 20020762.000, the Cooperative shall advise the Authority prior to applying to the District for withdrawals of water from Peace Creek or the Upper Peace River, or modification to the original permitted withdrawals by the Cooperative from Peace Creek or the Upper Peace River authorized by the District.

VI. COOPERATIVE PEACE RIVER AND PEACE CREEK WITHDRAWALS. For up to 10 years from the issuance date of the Final Permit,

the Authority will write a letter of support to the District and shall not challenge the issuance of water use permit(s) by the District to the Cooperative to withdraw water from Peace Creek for natural system restoration and potable use or the Upper Peace River in Polk County for storage in reservoirs or other approved consumptive uses ultimately for potable use with a duration of up to 50 years.

VII. JOINT PETITION FOR RULEMAKING.

- a. Increase of MFL Maximum Day Withdrawal. Within 1 year of the Effective Date, the Authority and the Cooperative, and any of the other Parties which desire to participate, will jointly petition the District to modify Florida Administrative Code Rule 40D-8.041(8) to increase the MFL Maximum Day Withdrawal to a flow/quantity or create another Block with a higher MFL Maximum Day Withdrawal based upon the best available information and that is mutually agreeable to the Authority and the Cooperative. The Authority and the Cooperative, and the other Parties which desire to participate, will work together to convince the District to initiate rulemaking to increase the MFL Maximum Day Withdrawal to the requested flow/quantity.
- b. Allocation of MFL Maximum Day Withdrawal. In the event the petition to modify Florida Administrative Code Rule 40D-8.041(8) to increase the current MFL Maximum Day Withdrawal is granted, the Authority and the Cooperative will jointly decide what portion of the increased flow above 400 cfs or increased maximum day quantity above 258 mgd may be used by each Party in its respective water use permit modification application and the circumstances under which each Party may use the increased quantity. In the event the Authority and Cooperative cannot reach agreement on how to allocate the increased flow above 400 cfs or the increased maximum day quantity above 258 mgd, then the increased flow/quantity to be used in each Party's respective water use permit modification application will be allocated to the Authority based on a ratio of 210 mgd to 258 mgd and

will be allocated to the Cooperative based on a ratio of 48 mgd to 258 mgd. If the Cooperative does not receive a notice of intent to issue a water use permit to withdraw water from Peace Creek or the Upper Peace River within 10 years of the issuance date of the Final Permit, then Authority shall no longer be bound by this provision.

- c. Modification of Authority Permit. Notwithstanding the Maximum Day Quantity imposed on the Authority pursuant to the Final Permit at Special Condition 17, in the event the MFL Maximum Day Withdrawal is increased above 400 cfs (258 MGD), the Authority may apply to modify or amend its then existing water use permit to increase its Maximum Day Quantity after notice to the Cooperative.
- d. Modification of Cooperative Permit(s). In the event an increase of the MFL Maximum Day Withdrawal above 400 cfs (258 MGD) allows for an increase in the permitted withdrawals from Peace Creek and/or the Upper Peace River contained in the initial water use permit(s) issued by the District, then the Cooperative may apply to modify those permits to reflect the higher Maximum Day Quantities in its permit, after notice to the Authority.

VIII. COORDINATING COMMITTEE. Within 6 months of the Effective Date, the Authority, Cooperative and any of the other Parties which desire to participate, shall form a Coordinating Committee to share/gather information on matters of common interest in the Peace River Watershed, including, but not limited to, minimum flows and levels, water quality, water supply projects, water supply planning, environmental protection, and hydrobiological monitoring. The composition and organization of the Coordinating Committee will be by mutual agreement. It is the intention of the Parties that the Coordinating Committee serve to identify issues of common interest so as to increase coordination regarding the shared use of the Peace River by the Authority and the Cooperative.

IX. TERMINATION. This Agreement may only be terminated by written consent of all the Parties.

X. MISCELLANEOUS PROVISIONS.

- a. **Notice.** All notices, amendments, requests, consents and other communications required or permitted under this Agreement shall be in writing (including telex, facsimile or telecommunication) and shall be (as elected by the Party giving such notice) hand delivered by prepaid express overnight courier or messenger service, telecommunicated or mailed (air-mail if international) by registered or certified mail (postage prepaid), return receipt requested, to the following addresses or to such other address(es) as a Party may designate by prior written notice in accordance with this provision to the other Party:

As to the Authority: Peace River/Manasota Regional Water
Supply Authority
9415 Town Center Parkway
Lakewood Ranch, FL 34202
Attn: Patrick J. Lehman, P.E.
Executive Director
Phone: (941) 316-1776
Fax: (941) 316-1772

With a copy to: Manson Bolves Donaldson Varn, P.A.
(Which Shall Not 109 N. Brush Street
Constitute Notice) Suite 300
Tampa, FL 33602
Attn: Douglas P. Manson, Esq.
Phone: (813) 514-4700
Fax: (813) 514-4701

As to the Cooperative Polk Regional Water Cooperative
330 W. Church Street
Bartow, FL 33831-9005

Attn: Ryan J. Taylor
Executive Director
Phone: (863) 534-6475
Fax: (863) 534-7069

With a copy to:
(Which Shall Not
Constitute Notice)

de la Parte & Gilbert, P.A.
101 E. Kennedy Boulevard
Suite 2000
Tampa, FL 33601
Attn: Edward P. de la Parte, Jr. Esq.
Phone: (813) 229-2775
Fax: (813) 229-2712

As to Polk County

Polk County
330 W. Church Street
Bartow, FL 33831-9005
Attn: Jim Freeman
County Manager
Phone: (863) 534-6018
Fax: (863) 534-7069

With a copy to:
(Which Shall Not
Constitute Notice)

Polk County
330 W. Church Street
Bartow, FL 33831-9005
Attn: Michael Craig, Esq.
County Attorney
Phone: (863) 534-6482
Fax: (863) 534-7654

As to Bartow

City of Bartow
Bartow City Hall
450 N. Wilson Avenue
Bartow, FL 33830
Attn: George Long

City Manager
Phone: (863) 534-0100
Fax: (863) 534-0409

With a copy to:
(Which Shall Not
(Constitute Notice)

Boswell & Dunlap, LLP
245 South Central Avenue
Bartow, FL 33830
Attn: Sean R. Parker, Esq.
City Attorney
Phone: (863) 533-7117
Fax: (863) 533-7412

As to Fort Meade

City of Fort Meade
8 West Broadway Street
Fort Meade, FL 33841
Attn: Fred Hilliard
City Manager
Phone: (863) 285-1100
Fax: (863) 285-1124

With a copy to:
(Which Shall Not
Constitute Notice)

Gray Robinson, P.A.
301 East Pine Street
Suite 1400
Orlando, FL 32801
Attn: Thomas A. Cloud, Esq.
City Attorney
Phone: (407) 843-8880
Fax: (407) 244-5690

As to Lakeland

City of Lakeland
228 S. Massachusetts Avenue
Lakeland, FL 33801
Attn: Tony Delgado
City Manager

Phone: (863) 834-6006
Fax: (863) 834-8402

**With a copy to:
(Which Shall Not
Constitute Notice)**

City of Lakeland
228 S. Massachusetts Avenue
Lakeland, FL 33801
Attn: Timothy McCausland, Esq.
City Attorney
Phone: (863) 834-6010
Fax: (863) 834-8204

As to Wauchula

City of Wauchula
126 South 7th Avenue
Wauchula, FL 33873
Attn: Terry Atchley
City Manager
Phone: (863) 773-3131
Fax: (863) 773-0773

**With a copy to:
(Which Shall Not
Constitute Notice)**

Gray Robinson, P.A.
301 East Pine Street
Suite 1400
Orlando, FL 32801
Attn: Thomas A. Cloud, Esq.
City Attorney
Phone: (407) 843-8880
Fax: (407) 244-5690

As to Winter Haven

City of Winter Haven
City Hall
451 Third Street NW
Winter Haven, FL 33881
Attn: Michael Herr
City Manager

Phone: (863) 291-5600

Fax: (863) 291-5623

With a copy to:
(Which Shall Not
Constitute Notice)

Boswell & Dunlap, LLP
245 South Central Avenue
Bartow, FL 33830
Attn: Frederick J. Murphy, Jr., Esq.
City Attorney
Phone: (863) 533-7117
Fax: (863) 533-7412

- b. Authority to Enter Agreement. The Parties each have the power, authority and legal right to enter into and perform the obligations set forth in this Agreement, and the execution and delivery and performance hereof by the Parties has been duly authorized by the governing authority of each of the Parties.
- c. Entire Agreement. This Agreement represents the entire understanding and agreement between the Parties with respect to the subject matter hereof. This Agreement also supersedes and replaces all prior representations, statements and understandings between the Parties with respect to the matters and things addressed herein, either written or oral, including, but not limited to the "Points of Agreement."
- d. Binding Effect. All of the terms and provisions of this Agreement, whether so expressed or not, shall be binding upon, inure to the benefit of, and be enforceable by the Parties and their respective legal representatives, successors and permitted assigns.
- e. Default and Remedy.
 - i. Default. Failure on the part of any Party to observe, comply with, perform or maintain in any material way any term,

covenant, condition, duty, obligation, representation or express warranty contained in this Agreement shall constitute a Default under this Agreement.

- ii. Notice of Default and Opportunity to Cure. Upon occurrence of an alleged Default by any Party, the other Party shall deliver written notice to the Party allegedly in Default that identifies the specific nature of the alleged Default. The Party receiving such notice shall have thirty (30) days within which to cure the alleged Default. Provided that, if the alleged Default is of such nature that it cannot be reasonably cured within thirty (30) days, the Party allegedly in Default shall have such additional time as may be reasonably necessary to cure the alleged Default, so long as within said period, the alleged defaulting Party commences the cure and diligently prosecutes such cure until completion.
- iii. Remedy for Default. For any alleged Default not cured as provided in Article X.e.ii of this Agreement, the non-Defaulting Party may seek any remedy it may have available in law or in equity against the alleged Defaulting Party.
- iv. Mediation. Prior to seeking any legal remedy for a Default as provided in Article X.e.iii of this Agreement, a Party shall be required to mediate the dispute with the Party in Default. A Party submitting a dispute to mediation shall do so by delivering to the other Party a notice requesting mediation of the dispute and providing a list of three mediators acceptable to the requesting Party. Within 10 business days after receipt of the notice from the requesting Party, the other Party shall in writing provide notice of either the selection of one of the mediators proposed by the requesting Party or offer a list of three additional mediators for consideration. Within 10 business days of the requesting Party's receipt of the notice of selection

or list of alternative mediators, the Parties shall meet for the purpose of selecting one of the mediators proposed by the Parties. The mediators proposed by the Parties shall be Florida Supreme Court certified mediators, and, to the extent practicable, mediators shall have special competence and experience with respect to the subject matter under consideration. Within 20 days after a mediator is agreed upon, a reasonable time and date for the mediation shall be scheduled between the Parties and documented in writing. The mediation shall be conducted expeditiously and the location of the mediation shall be at a location mutually selected by the Parties, or at a location in Hillsborough County of the mediator's choosing if the Parties cannot agree on a location. The Parties shall share equally in the fees and expenses of the mediator. Each Party shall pay their respective attorney's fees, expert fees and other expenses related to the mediation. Any settlement achieved through mediation shall be made in writing approved by the Parties. If a settlement is not reached within 120 days after the initiation of mediation or, if the mediator declares an impasse, then the non-Defaulting Party may seek any and all legal or equitable remedies for the alleged Default. The mediation process set forth herein is intended to be a waiver of or a substitute or replacement for the conflict resolution process set forth in Chapter 164, Florida Statutes.

- f. Time Extensions. The Parties by joint written consent may extend or change any of the deadlines specified in this Agreement.
- g. Amendment or Modification. This Agreement may only be amended or modified, in whole or in part, at any time, through a written instrument that sets forth such changes and which is signed by all the Parties.

- h. Waiver. Any failure by a Party to exercise any right, power or privilege under this Agreement shall not constitute a waiver of that right, power, or privilege under this Agreement.
- i. Assignability. This Agreement may not be assigned without the prior written consent of all the Parties to this Agreement.
- j. Third Parties. Nothing in this Agreement, whether express or implied, is intended to confer any rights or remedies under or by reason of this Agreement, on any person other than the Parties, their legal representatives, successors and permitted assigns. Nothing in this Agreement is intended to relieve or discharge the obligation of any third person to any Party, nor shall any provision of this Agreement be interpreted to give any third person any right of subrogation or action over or against the Parties.
- k. Recording. The Parties intend this Agreement to be an interlocal agreement pursuant to Section 163.01, Florida Statutes, and it shall be recorded by the Cooperative with the Clerk of the Circuit Court in and for Polk, Manatee, Sarasota, DeSoto and Charlotte Counties, Florida.
- l. Severability. If any part of this Agreement is contrary to, prohibited by or deemed invalid under applicable law or regulation, such provision shall be inapplicable and deemed omitted to the extent so contrary, prohibited or invalid, but the remainder hereof shall not be invalidated thereby and shall be given full force and effect so far as possible.
- m. Governing Law and Venue. This Agreement and all transactions contemplated by this Agreement shall be governed by and construed and enforced in accordance with the laws of the State of Florida without regard to any contrary conflicts of law principle. Venue of all proceedings in connection herewith shall be exclusively in

Hillsborough County, Florida and each Party hereby waives whatever their respective rights may have been in the selection of venue.

- n. Headings. The headings contained in this Agreement are for convenience of reference only, and shall not limit or otherwise affect in any way the meaning or interpretation of this Agreement.
- o. Attorney's Fees. The Parties agree that each Party shall bear its own attorney's fees and costs incurred in connection with this Agreement.
- p. Waiver of Jury Trial. The Parties expressly and specifically hereby waive the right to a jury trial as to any issue in any way connected to this Agreement.
- q. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.
- r. No Construction Against Drafting Party. The Parties to this Agreement expressly recognize that this Agreement results from a negotiation process in which each Party was given the opportunity to consult with counsel and contribute to the drafting of this Agreement. Given this fact, no legal or other presumptions against the Party drafting any portion of this Agreement concerning its construction, interpretation, or otherwise shall accrue to the benefit of any Party to this Agreement and each Party expressly waives the right to assert such presumption in any proceeding or disputes connected with, arising out of, or involving this Agreement.
- s. Miscellaneous Provisions.
 - i. No Party shall be deemed to be an agent of any other Party nor shall represent that it has the authority to bind any other Party.

- ii. In computing any time period under this Agreement, any reference to days shall mean calendar days, unless business days are specifically referenced. In computing any period of time under this Agreement, exclude the day of the event that triggers the computation of the period of time. If the last day of a period of time is a Saturday, Sunday or legal holiday, the period of time shall run until the end of the next calendar day which is not a Saturday, Sunday or legal holiday.
- iii. Nothing in this Agreement shall be deemed a waiver of any Party's police powers.

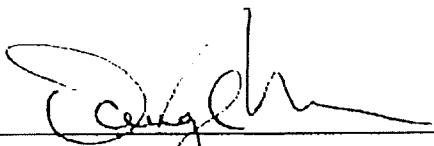
[Signatures begin on the following pages]

**PEACE RIVER/MANASOTA
REGIONAL WATER SUPPLY
AUTHORITY**

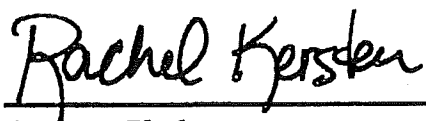
By: 
Alan Maio, Chair

Date: 12/19/18

Approved as to Form and Correctness:

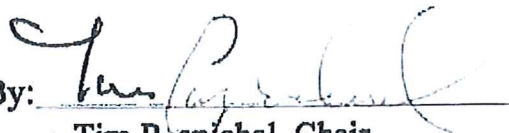

Douglas Manson
General Counsel

ATTEST:


Agency Clerk


[Seal]

**POLK REGIONAL
WATER COOPERATIVE**

By: 
Tim Pospichal, Chair

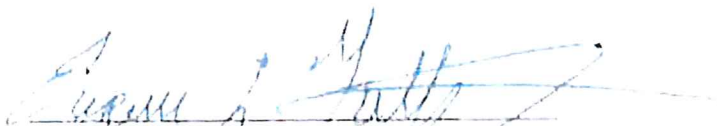
Date: 12/19/2018

Approved as to Form and Correctness:


Edward P. de la Parte, Jr.
Legal Counsel

ATTEST:

[Seal]


Eugene Fultz, Secretary/Treasurer



**POLK COUNTY, a political
subdivision of the State of Florida**

Stacy M. Butterfield
Clerk to the Board

By: Alison Holland
Deputy Clerk

By: [Signature]
George M. Lindsey, III, Chair
Board of County Commissioners

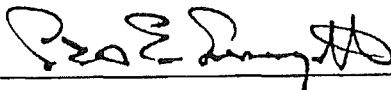
Date: 11/8/19
H.9

Reviewed as to form and legal sufficiency

[Signature]
County Attorney's Office
Legal Counsel



CITY OF BARTOW

By: 
Leo E. Longworth, Mayor

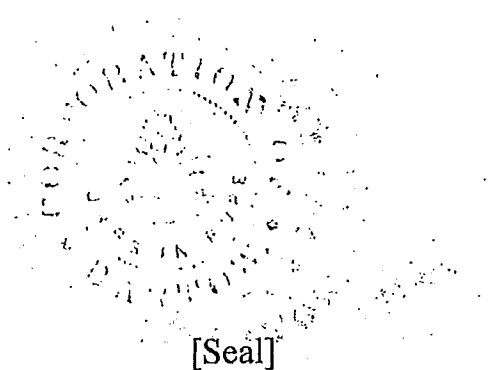
Date: 01-22-2019

Approved as to Form and Correctness:




Sean Parker
City Attorney

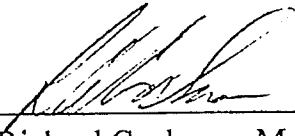
ATTEST:



[Seal]

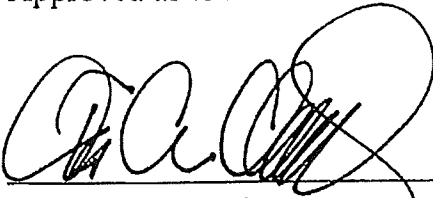

Jacqueline Poole, City Clerk

CITY OF FORT MEADE

By: 
Richard Cochrane, Mayor

Date: 1-8-19

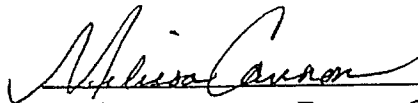
Approved as to Form and Correctness:


Thomas A. Cloud
City Attorney

ATTEST:

[Seal]




Melissa Cannon, Deputy Clerk
Cannon

CITY OF LAKELAND

By: _____

William "Bill" Mutz, Mayor

Date: _____

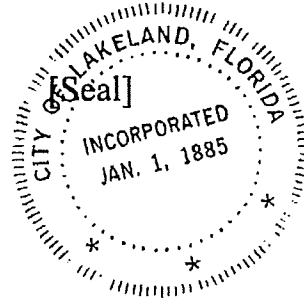
01-09-2019

Approved as to Form and Correctness:

Timothy J. McCausland
City Attorney

ATTEST:

Kelly Koos, City Clerk



CITY OF WAUCHULA

By: Richard Keith Nadaskay, Jr.
Richard Keith Nadaskay, Jr., Mayor

Date: 1-14-2019

Approved as to Form and Correctness:

Thomas A. Cloud

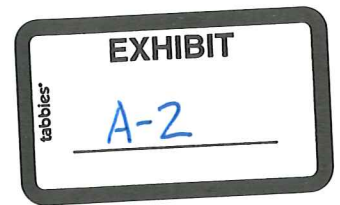
Thomas A. Cloud
City Attorney

ATTEST:

[Seal]

Holly Smith
Holly Smith, City Clerk

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WATER USE PERMIT
Individual
PERMIT NO. 20 010420.010



PERMIT ISSUE DATE: February 26, 2019

EXPIRATION DATE: February 26, 2069

The Permittee is responsible for submitting an application to renew this permit no sooner than one year prior to the expiration date, and no later than the end of the last business day before the expiration date, whether or not the Permittee receives prior notification by mail. Failure to submit a renewal application prior to the expiration date and continuing to withdraw water after the expiration date is a violation of Chapter 373, Florida Statutes, and Chapter 40D-2, Florida Administrative Code, and may result in a monetary penalty and/or loss of the right to use the water. Issuance of a renewal of this permit is contingent upon District approval.

TYPE OF APPLICATION: Renewal

GRANTED TO: Peace River/Manasota Regional Water Supply Authority
9415 Town Center Parkway
Lakewood Ranch, FL 34202

DeSoto County B.O.C.C.
201 East Oak Street
Arcadia, FL 34255

Sarasota County B.O.C.C.
1660 Ringling Boulevard
Sarasota, FL 34236

Manatee County B.O.C.C.
P.O. Box 1000
Bradenton, FL 34206

City of North Port City Commission
4970 City Hall Boulevard
North Port, FL 34286

Charlotte County B.O.C.C.
18500 Murdock Circle, Suite 536
Port Charlotte, FL 33948

PROJECT NAME: Peace River Water Treatment Plant Facility

WATER USE CAUTION AREA(S): SOUTHERN WATER USE CAUTION AREA

COUNTY: DeSoto

TOTAL QUANTITIES AUTHORIZED UNDER THIS PERMIT (in gallons per day)

ANNUAL AVERAGE	80,000,000 gpd
-----------------------	----------------

MAXIMUM	258,000,000 gpd
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* The actual quantities authorized under the permit are based on flows in the Lower Peace River as described in Special Condition No. 4. The annual average quantity shown above reflects the amount of potable water projected to be produced by the Peace River Water Treatment Plant for delivery to the Authority's Customers. The maximum day quantity shown above is subject to Special Condition 17.

ABSTRACT:

This is a modification with renewal of an existing water use permit for public supply. The Peace River Manasota Regional Water Supply Authority (PRMRWSA) is a regional utility that relies exclusively on surface water withdrawals from the lower Peace River. This modification acknowledges the primary role of storage and flow-based withdrawals for this utility by removing artificial limits imposed by the previous annual average and peak month quantities in order to enable use of the Peace River Facility (PRF) to the greatest degree practicable to meet regional water supply needs consistent with the SWUCA Recovery Strategy. In addition, this modification authorizes an increase in the maximum daily withdrawal, from 120 MGD to 258 MGD, to enhance the capture of excess flows during the wet season and in support of planned facility expansion of both storage and treatment capacity. Withdrawals from the lower Peace River remain limited by the Minimum Flow established for the lower Peace River and the previously authorized block diversion schedule, which are unchanged at this time. There is no change in Use Type from the previous revision. This permit is located within the Southern Water Use Caution Area (SWUCA) and relies exclusively on an alternative water source (AWS). The renewal is issued with a permit duration of 50 years for this AWS facility as provided for by Florida Statute 373.236(5).

Special Conditions include those that require the Permittee to submit all required reports; to report monthly meter readings; to perform meter accuracy checks every five years; to cap withdrawals not in use; to comply with the Minimum Flow for the lower Peace River; to comply with the approved diversion schedule; to immediately implement the approved Peace River Hydrobiological Monitoring Plan 2018 Update with reports due each year by October 1; to provide annual reports, by June 1 each year, regarding the Permittee's individual and regional efforts to cooperatively develop and manage water supplies on a regional basis as envisioned by the SWUCA Recovery Strategy; to collect monthly water quality samples and weekly water level data from aquifer storage & recovery (ASR) wells; to construct proposed ASR wells according to approved specifications; and to comply with the SWUCA Recovery Strategy.

WATER USE TABLE (in gpd)

	<u>ANNUAL AVERAGE</u>	<u>MAXIMUM</u>
Public Supply	80,000,000	258,000,000

USE TYPE

Regional Public Supply
System

PUBLIC SUPPLY:

Population Served: 1,000,000

Per Capita Rate: 80 gpd/person

WITHDRAWAL POINT QUANTITY TABLE

Water use from these withdrawal points are restricted to the quantities given below:

I.D. NO. PERMITTEE/ DISTRICT	DIAM (in.)	DEPTH TTL./CSD.FT. (feet bls)	USE DESCRIPTION	AVERAGE (gpd)	PEAK MONTH (gpd)	CROP PROTECTION (gpd)
14 / 14	30	N/A / N/A	Public Supply	80,000,000	N/A	258,000,000
S-1 / 20	8	920 / 570	Aquifer Storage & Recovery	398,000	462,300	N/A
S-2 / 21	12	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-3R / 22	16	769 / 580	Aquifer Storage & Recovery	711,200	828,700	N/A
S-4 / 23	12	905 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-6 / 25	12	910 / 580	Aquifer Storage & Recovery	711,200	828,700	N/A
S-7 / 26	12	915 / 575	Aquifer Storage & Recovery	711,200	828,700	N/A
S-8 / 27	12	623 / 510	Aquifer Storage & Recovery	711,200	828,700	N/A
S-9R / 28	16	800 / 580	Aquifer Storage & Recovery	711,200	828,700	N/A
S-10 / 29	16	905 / 620	Aquifer Storage & Recovery	711,200	828,700	N/A
S-11 / 30	16	908 / 585	Aquifer Storage & Recovery	711,200	828,700	N/A
S-12 / 31	16	900 / 600	Aquifer Storage & Recovery	711,200	828,700	N/A
S-13 / 32	16	898 / 621	Aquifer Storage & Recovery	711,200	828,700	N/A
S-14 / 33	16	900 / 568	Aquifer Storage & Recovery	711,200	828,700	N/A
S-15 / 34	16	900 / 583	Aquifer Storage & Recovery	711,200	828,700	N/A
T-1 / 35	12	482 / 380	Aquifer Storage & Recovery	298,000	346,200	N/A
S-5R / 36	16	955 / 650	Aquifer Storage & Recovery	711,200	828,700	N/A
S-16 / 37	16	902 / 583	Aquifer Storage & Recovery	711,200	828,700	N/A
S-17 / 38	16	883 / 579	Aquifer Storage & Recovery	711,200	828,700	N/A
S-18 / 39	16	900 / 592	Aquifer Storage & Recovery	711,200	828,700	N/A
S-19 / 40	16	900 / 585	Aquifer Storage & Recovery	711,200	828,700	N/A
S-20 / 41	16	898 / 566	Aquifer Storage & Recovery	711,200	828,700	N/A
S-21 / 42	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-22 / 43	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-23 / 44	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-24 / 45	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-25 / 46	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-26 / 47	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-27 / 48	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-28 / 49	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-29 / 57	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-30 / 58	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-31 / 59	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-32 / 60	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-33 / 61	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-34 / 62	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-35 / 63	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-36 / 64	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-37 / 65	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-38 / 66	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-39 / 67	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-40 / 68	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-41 / 69	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A

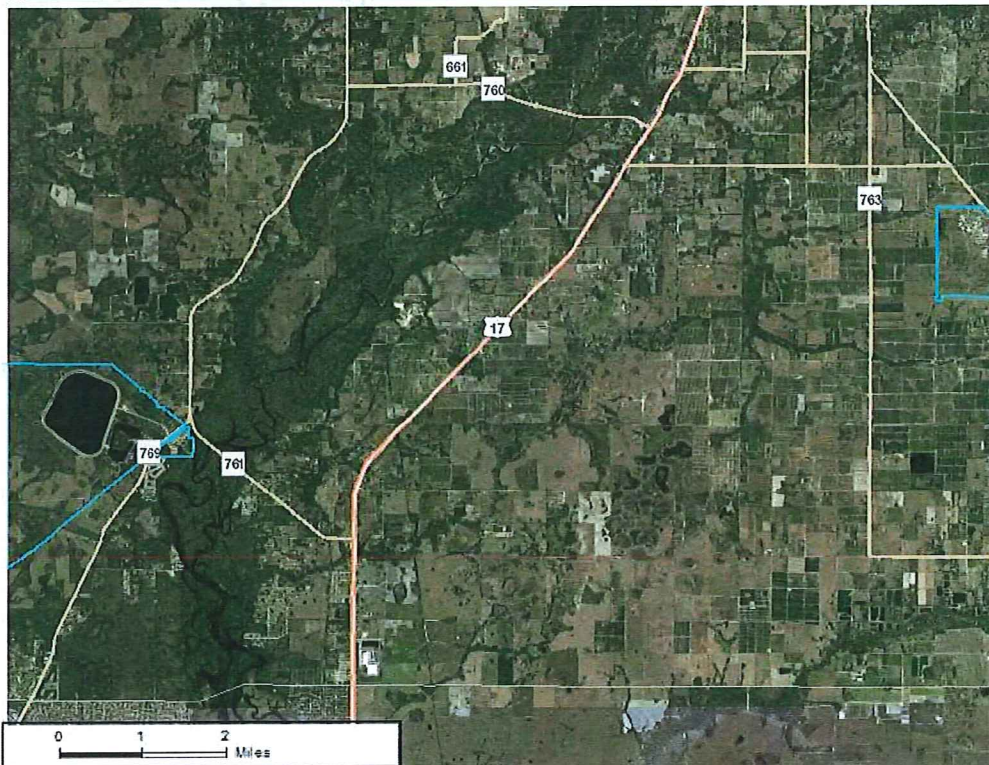
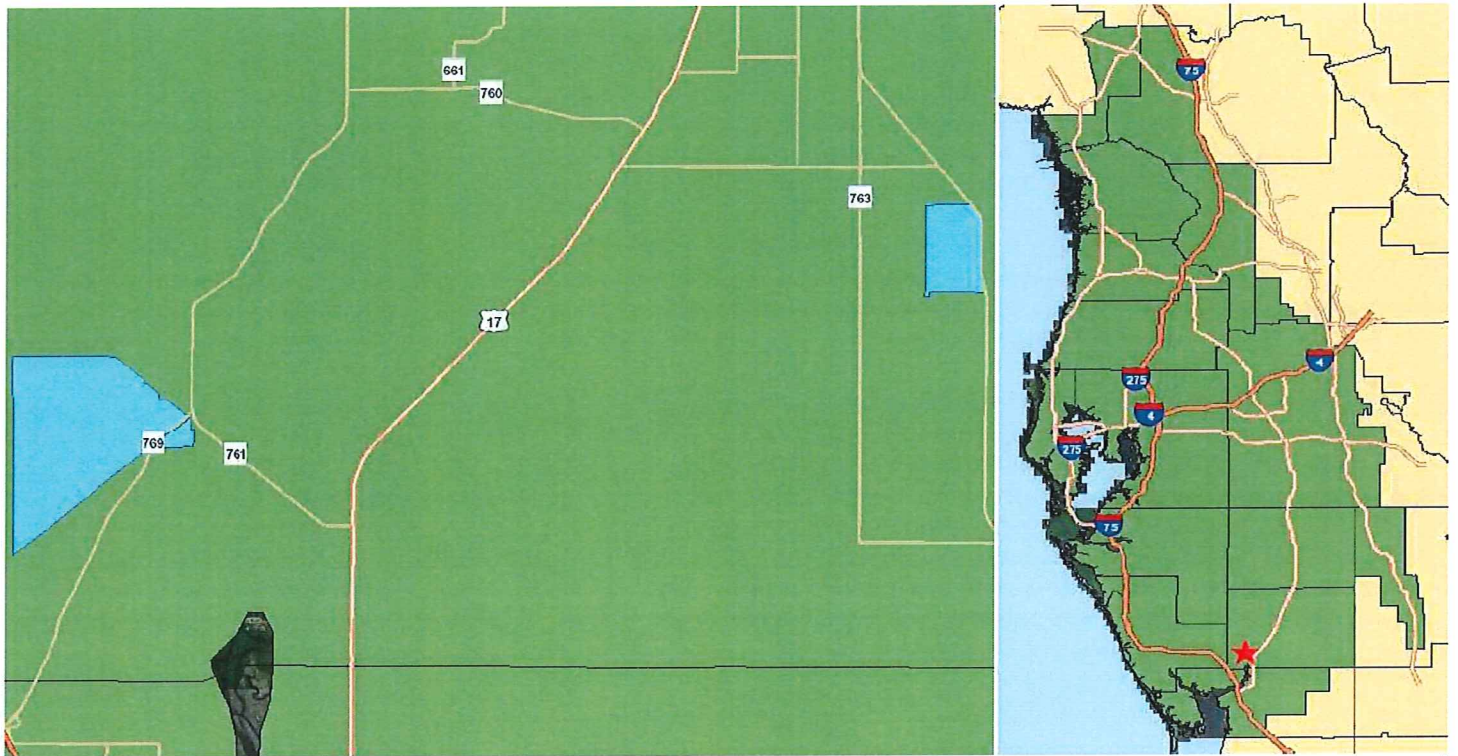
S-42 / 70	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-43 / 71	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-44 / 72	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-45 / 73	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
S-46 / 74	16	900 / 570	Aquifer Storage & Recovery	711,200	828,700	N/A
DJ-1 / 78	10	590 / 108	Public Supply	77,500	504,000	N/A
Standby						
DJ-3 / 80	8	570 / 70	Public Supply	77,500	504,000	N/A
Standby						

WITHDRAWAL POINT LOCATION TABLE

<u>DISTRICT 10 . NO.</u>	<u>LATITUDE/LONGITUDE</u>
14	27° 05' 12.45 "/81° 59' 57.95"
20	27° 05' 29.27"/82° 00'07.96"
21	27° 05'29.20"/82° 00'09.32"
22	27° 05'22.56"/82° 00'08.23"
23	27° 05' 05.44"/82° 01' 10.05"
25	27° 05' 15.75"/82° 00' 28.10"
26	27° 05' 12.10"/82° 00' 26.81"
27	27° 05' 12.94"/82° 00'38.42"
28	27° 05' 16.05"/82° 00'17.92"
29	27° 04' 57.68"/82° 01'06.56"
30	27° 05' 00.30"/82° 01' 06.68"
31	27° 04' 57.58"/82° 01'09.77"
32	27° 05'00.09"/82° 01'10.03"
33	27° 04' 57.18"/82° 01' 13.12"
34	27° 04'59.77"/82° 01'13.33"
35	27° 05' 28.50"/82° 00' 09.30"
36	27° 05' 22.49"/82° 00'18.12"
37	27° 05'03.01"/82° 01'06.60"
38	27° 05' 06.04"/82° 01'06.28"
39	27° 05' 03.12"/82° 01'09.73"
40	27° 05' 02.91"/82° 01'13.38"
41	27° 05'06.28"/82° 01'13.50"
42	27° 05' 15.14"/82° 02' 02.11"
43	27° 05' 11.53"/82° 01' 51 .25"
44	27° 05' 11.79"/82° 02'13.61"
45	27° 05' 05. 88"/82° 02' 03.06"
46	27° 05' 00.85"/82° 01'51.16"
47	27° 04' 58.44"/82° 02' 02.94"
48	27° 04' 50.88"/82° 01'52.27"
49	27° 04'40.72"/82° 01'51.75"
57	27° 04' 36.96"/82° 01'45.36"
58	27° 04' 33.17"/82° 01'35.30"
59	27° 04' 26.68"/82° 01'44.88"
60	27° 04' 27.82"/82° 01'50.57"
61	27° 04' 33.30"/82° 01'58.70"
62	27° 04' 38.14"/82° 02'06.80"
63	27° 04'42.88"/82° 02'15.54"
64	27° 04' 48.47"/82° 02'16.76"
65	27° 04' 52.20"/82° 02'24.73"
66	27° 05' 05.44"/82° 02'36.38"
67	27° 05' 24.55"/82° 02'36.34"

68	27° 05' 15.87"/82° 02' 40.60"
69	27° 04' 55.99"/82° 02' 39.77"
70	27° 04' 50.51"/82° 02' 35.83"
71	27° 04' 42.69"/82° 02' 26.75"
72	27° 04' 33.68"/82° 02' 16.61"
73	27° 04' 31.33"/82° 02' 06.78"
74	27° 04' 22.54"/82° 02' 05.68"
78	27° 08' 14.83"/81° 48' 13.24"
80	27° 08' 12.54"/81° 48' 11.76"

Location Map
Peace River/Manasota Regional Water Supply Authority
WUP No. 20 010420.010



Legend

• DIDs

WUP Boundary

2014 Natural Color Imagery

DESOTO COUNTY



Southwest Florida
Water Management District

STANDARD CONDITIONS:

The Permittee shall comply with the Standard Conditions attached hereto, incorporated herein by reference as Exhibit A and made a part hereof.

SPECIAL CONDITIONS:

1. All reports and data required by condition(s) of the permit shall be submitted to the District according to the due date(s) contained in the specific condition. If the condition specifies that a District-supplied form is to be used, the Permittee should use that form in order for their submission to be acknowledged in a timely manner. The only alternative to this requirement is to use the District Permit Information Center (www.swfwmd.state.fl.us/permits/epermitting/) to submit data, plans or reports online. There are instructions at the District website on how to register to set up an account to do so. If the report or data is received on or before the tenth day of the month following data collection, it shall be deemed as a timely submittal.

All mailed reports and data are to be sent to:

Southwest Florida Water Management District
Tampa Service Office, Water Use Permit Bureau
7601 U.S. Hwy. 301 North
Tampa, Florida 33637-6759

Submission of plans and reports: Unless submitted online or otherwise indicated in the special condition, the original and two copies of each plan and report, such as conservation plans, environmental analyses, aquifer test results, per capita annual reports, etc. are required.

Submission of data: Unless otherwise indicated in the special condition, an original (no copies) is required for data submittals such as crop report forms, meter readings and/or pumpage, rainfall, water level, evapotranspiration, or water quality data.(499)

2. The annual average and peak month quantities for District ID Nos. 20 through 74, Permittee ID Nos. S-1 through S-46 (ASR Wellfields 1 and 2), shown in the withdrawal point quantity table are estimates based on historic and/or projected distribution of pumpage, and are for water use inventory and impact analysis purposes only. The quantities listed for these individual sources are not intended to dictate the distribution of pumpage from permitted sources. The Permittee may make adjustments in pumpage distribution as necessary so long as adverse environmental impacts do not result and the Permittee complies with all other conditions of this Permit. In all cases, the total annual average and peak month withdrawal from the ASR wellfields is limited to 32,700,000 gpd and 38,100,000 gpd, respectively.(221)
3. The Permittee shall construct the proposed wells according to the surface diameter, casing depth, and total depth specifications listed below. The casing shall be continuous from land surface to the minimum depth stated and is specified to prevent the unauthorized interchange of water between different water bearing zones. The surface diameter and total depth specified are those proposed by the Permittee in the application process. However, it is the Permittee's responsibility to have the water in the well sampled during well construction before reaching the estimated minimum total depth. Such sampling is necessary to ensure that the well does not encounter water quality that cannot be utilized by the Permittee, and to ensure that withdrawals from the well will not cause salt-water intrusion. All depths given are in feet below land surface.(235)

District ID Nos. 42 through 49 and 57 through 74, Permittee ID Nos. S-21 through S-46, having a surface diameter of 16 inches, with a minimum casing depth of 570 feet, drilled to a minimum total depth of 900 feet.

4. The quantities withdrawn from the Lower Peace River are limited by the adopted Minimum Flow for the Lower Peace River; the diversion schedule described below; and, the Maximum Daily Quantity of 258 MGD; and as set forth in Special Condition No. 17.

Surface water withdrawals at DID No. 14 will be based on the previous day's combined average flow as measured in cubic feet per second (cfs) for the Peace River at the Arcadia Station, Joshua Creek at Nocatee, and Horse Creek near Arcadia:

Less than 130 cfs:

No diversion may occur (all blocks)

At least 130 cfs:

The amount of diversion shall not exceed 16% of the previous day's combined average flow (all blocks). In no case shall the diversion exceed the difference between 130 cfs and the previous day's combined flow.

At least 625 cfs:

Blocks 2 and 3 only (June 26 through April 19) - The amount of diversion shall not exceed 28% of the previous day's combined average flow. In no case shall the diversion exceed 400 cfs. (358)

5. Any wells not in use, and in which pumping equipment is not installed shall be capped or valved in a water tight manner in accordance with Chapter 62-532.500, FAC. (568)
6. This Permit is located within the Southern Water Use Caution Area (SWUCA). Pursuant to Section 373.0421, Florida Statutes, the SWUCA is subject to a minimum flows and levels recovery strategy, which became effective on January 1, 2007. The Governing Board may amend the recovery strategy, including amending applicable water use permitting rules based on an annual assessment of water resource criteria, cumulative water withdrawal impacts, and on a recurring five-year evaluation of the status of the recovery strategy up to the year 2025 as described in Chapter 40D-80, Florida Administrative Code. This Permit is subject to modification to comply with new rules. (652)
7. By June 1 of each year the Permittee shall provide an Annual Report for the preceding Water Year (i.e. October 1 through September 30) regarding regional water supply conditions, planning and development for new supplies and interconnections, resource management, Alternative Water Supply (AWS), water conservation and demand management efforts within the Authority's four-county region, including those of the Authority its member governments, customers, and water supply partners with whom water is shared. The Annual Report shall include an update on the following items for the preceding Water Year:
 - a. Hydrologic conditions in the Authority's four-county service area including a summary of rainfall and flow in the Peace River at Arcadia, Horse Creek near Arcadia and Joshua Creek near Nocatee.
 - b. An annual summary of Authority withdrawals from the Peace River, reservoir and ASR storage, water treated and water delivered from the Peace River Facility.
 - c. An annual summary of regional and individual member customer, and partner water supply demands, the sources and the quantities derived therefrom.
 - d. Projected regional water demands for the next 20 years and anticipated new supply capacity/source development schedule to reliably meet those projected demands.
 - e. The status of current water supply facilities, and of new supply/capacity and transmission system facilities in the planning, design or construction stage.
 - f. Schedule and status for updates to the Authority's Regional Water Supply Plan including an electronic copy of the latest Regional Water Supply Plan (unless provided with a previous annual report).
 - g. Regional efforts to coordinate, collaborate, and implement resource management measures that support the SWFWMD's SWUCA Recovery Strategy.
 - h. Status and update on resource management and Alternative Water Supply (AWS) development efforts in the region directly relating to beneficial reuse of reclaimed water, harvest and reuse of stormwater, and other AWS sources.
 - i. Status and update on water conservation and demand management efforts by Authority members, customers and partners including but not limited to meeting District per-capita water use targets for the SWUCA. Any updates to the respective Water Conservation Plans of members, customers, and partners shall also be provided (unless previously provided). (660)

8. Flow in the Peace River shall be read at the Arcadia Station, USGS gage 02296750 (District ID No. 16); Horse Creek near Arcadia, USGS gage 02297310 (District ID No. 75), and Joshua Creek at Nocatee, USGS gage 02297100 (District ID No. 76). The combined flow of the three gages will be reported as District ID No. 77. Flow shall be read on a daily basis and reported to the Water Use Permit Bureau (using District approved forms) on or before the tenth (10th) day of the following month. The recordings shall include daily average water flow in million gallons per day (MGD) and cubic feet per second (cfs). (667)
9. The Permittee shall immediately implement the Peace River Hydrobiological Monitoring Program 2018 Update (HBMP) dated January 2018 which is attached to and made part of this permit (Exhibit C). An Annual Data Report including raw data and satellite imagery will be submitted to the Water Use Permit Bureau Chief by October 1 each year for the preceding calendar year. Every fifth year, instead of the Annual Data Report, a comprehensive 5-Year Summary Report compiling the results, analysis, and conclusions of the HBMP for the five calendar years preceding will be submitted by October 1. The next comprehensive 5-Year Summary Report shall be submitted by October 1, 2022. Adaptive management changes to the HBMP, if any, shall generally be proposed within the 5-year reports. (676)
10. The following proposed withdrawal facilities shall be metered within 90 days of completion of construction of the facilities: District ID Nos. 42 through 49, and 57 through 74, Permittee ID Nos. S-21 through S-46. Monthly pumpage reporting, as well as meter accuracy checks every five years, shall be in accordance with instructions in Exhibit B, Metering Instructions, attached to and made part of this permit. (718)
11. The following withdrawal facilities shall continue to be maintained and operated with existing, non-resettable, totalizing flow meter(s) or other measuring device(s) as approved by the Water Use Permit Bureau Chief:

District ID No. 14, Permittee ID No. 14 (river intake to reservoir)
 District ID No. 15, Permittee ID No. RESV (raw water from reservoirs to plant)
 District ID No. 17, Permittee ID No. PRWTP (river intake directly to plant) District ID
 No. 18, Permittee ID No. PRDIS (finished water from plant minus ASR recharge)

Monthly pumpage reporting, as well as meter accuracy checks every five years, shall be in accordance with instructions in Exhibit B, Metering Instructions attached to and made part of this permit. (719)
12. The following existing standby withdrawal facilities (those that provide back-up water for another withdrawal point in the event the other withdrawal point becomes unusable) shall continue to be metered: District ID Nos. 78 and 80, Permittee ID Nos. DJ-1 and DJ-3. Monthly meter reading and reporting, as well as meter accuracy checks every five years, shall be in accordance with instructions in Exhibit B, Metering Instructions attached to and made part of this permit. (722)
13. During aquifer recharge and recovery operations, water quality samples from the withdrawal points listed below shall be collected after pumping the withdrawal point at its normal rate to a constant temperature, pH, and conductivity. Recharge water quality shall be reported as the finished water from the water treatment plant (DID 18). Water quality samples during recovery shall be collected at the sample tap for each ASR well. The frequency of sampling per water quality parameter is listed in the table according to the withdrawal point. The recording and reporting shall continue according to the schedule established below for existing wells, and shall begin within 90 days of completion of any proposed wells. Samples shall be collected whether or not the well is being used unless infeasible. If sampling is infeasible, the Permittee shall indicate the reason for not sampling on the water quality data form or in the space for comments in the WUP Portal for data submissions. For sampling, analysis and submittal requirements see Exhibit B, Water Quality Sampling Instructions, attached to and made part of this permit. (752)

Recharge (Finished Water from Plant):

Existing District ID No. 18, Permittee ID No. PRDIS, for TDS, sulfates, conductivity, chlorides and pH, on a monthly basis

Recovery:

Existing District ID Nos. 20 through 23, and 25 through 41, Permittee ID Nos. S-1 through S-15, T-1, S-5R, and S-16 through S-20, for TDS, sulfates, conductivity, chlorides and pH, on a monthly basis

Proposed District ID Nos. 42 through 49, and 57 through 74, Permittee ID Nos. S-21 through S-46, for TDS, sulfates, conductivity, chlorides and pH, on a monthly basis

Monitor Wells:

Existing District ID Nos. 51 and 52, Permittee ID Nos. M-2 and T-2, for TDS, sulfates, conductivity, chlorides and pH, on a monthly basis

Existing District ID No. 50, Permittee ID No. 1-1E, for chlorides, on a monthly basis

14. Background water quality samples shall be collected during construction of the proposed ASR wells. The samples shall be collected at intervals of 50 feet or less, from 600 feet below land surface to the bottom of the well, or as may otherwise be specified in the well construction permit in accordance with regulatory requirements in effect at that time. The Permittee's sampling procedure shall follow the handling and chain of custody procedures designated by the certified laboratory which will undertake the analysis. The results of the sampling program shall be due within 30 days of the completion of the well. For sampling, analysis and submittal requirements, see Exhibit B, attached to and made part of this permit.(753)

District ID Nos. 42 through 49, and 57 through 74, Permittee ID Nos. S-21 through S-46, for total dissolved solids, sulfate, conductivity, chlorides and pH.

15. The Permittee shall continue to record and submit water levels for the following wells and report them to the District at the frequency listed. To the maximum extent possible, water levels shall be recorded on a regular schedule: same time each day, same day each week, same week each month as appropriate to the frequency required. The readings shall be reported online via the WUP Portal at the District website or mailed in hardcopy on District-provided forms to the Water Use Permit Bureau, on or before the tenth day of the following month. The frequency of recording may be modified by the Water Use Permit Bureau Chief, as necessary to ensure the protection of the resource. The Permittee shall have the elevation of the measuring point on each well listed surveyed to NAVO 1988, and a copy of the certified survey report for the wells listed shall be included with the first data submittal.(758)

Existing District ID Nos. 20 through 23, 25 through 41, and 50, Permittee ID Nos. S-1 through S-15, T-1, S-5R, S-16 through S-20, and 1-1E on a weekly basis

Existing District ID Nos. 51 and 52, Permittee ID Nos. M-2 and T-2 on a continuous (hourly) basis and reported as daily minimum and maximum values.

Proposed District ID Nos. 42 through 49, and 57 through 74, Permittee ID Nos. S-21 through S-46 on a weekly basis.

16. Total quantities and cumulative volumes of water stored and recovered for each ASR well shall be recorded and reported on a monthly basis. Pumpage reporting, as well as meter accuracy checks every five years, shall be in accordance with instructions in Exhibit B, Metering Instructions, attached to and made part of this permit.(830)

Existing District ID Nos. 20 through 22, 25 through 28, 35 and 36, Permittee ID Nos. S-1, S-2, S-3R, S-6 through S-8, S-9R, T-1 and S-5R (ASR Wellfield No. 1)

Existing District ID Nos. 23, 29 through 34, and 37 through 41, Permittee ID Nos. S-4, S-10 through S-19, and S-29 (ASR Wellfield No. 2).

Proposed District ID Nos. 42 through 49, and 57 through 74, Permittee ID Nos. S-21 through S-46.

17. The Maximum Daily Quantity shall be reduced by up to 48 MGD to be credited against impact, if any, from the proposed permitted withdrawal from the Polk Regional Water Cooperative ("Cooperative") from Peace Creek for natural system restoration and potable water supply or from the Upper Peace River in Polk County for storage in reservoirs or other approved consumptive uses ultimately for potable use. The District shall determine the reduction to the Maximum Daily Quantity up to 48 MGD necessary to offset impacts, if any, from the Cooperative's proposed permitted withdrawals and notify the Authority. Within 30 days of the District's notification, the Authority shall submit a letter modification to the District to reduce the Maximum Daily Quantity by specified amount up to 48 mgd. The letter modification shall specify that the reduction shall take effect immediately upon notification by the Cooperative to the District and the Permittee of the actual withdrawal of water by the Cooperative from Peace Creek or the Upper Peace River. If the Cooperative does not receive a notice of intent to issue a water use permit to withdraw water from Peace Creek or the Upper Peace River within 10 years of the issuance date of this Permit, then no reduction pursuant to this condition will occur.(990)

40D-2
Exhibit A

WATER USE PERMIT STANDARD CONDITIONS

1. With advance notice to the Permittee, District staff with proper identification shall have permission to enter, inspect, collect samples, take measurements, observe permitted and related facilities and collect and document any information deemed necessary to determine compliance with the approved plans, specifications and conditions of this permit. The Permittee shall either accompany District staff onto the property or make provision for access onto the property.
2. When necessary to analyze impacts to the water resource or existing users, the District shall require the Permittee to install flow metering or other measuring devices to record withdrawal quantities and submit the data to the District.
3. A District identification tag shall be prominently displayed at each withdrawal point that is required by the District to be metered or for which withdrawal quantities are required to be reported to the District, by permanently affixing the tag to the withdrawal facility.
4. The Permittee shall mitigate any adverse impact to environmental features or offsite land uses as a result of withdrawals. When adverse impacts occur or are imminent, the District shall require the Permittee to mitigate the impacts. Examples of adverse impacts include the following:
 - A. Significant reduction in levels or flows in water bodies such as lakes, impoundments, wetlands, springs, streams or other watercourses; or
 - B. Damage to crops and other vegetation causing financial harm to the owner; and
 - C. Damage to the habitat of endangered or threatened species.
5. The Permittee shall mitigate any adverse impact to existing legal uses caused by withdrawals. When adverse impacts occur or are imminent, the District may require the Permittee to mitigate the impacts. Adverse impacts include:
 - A. A reduction in water levels which impairs the ability of a well to produce water;
 - B. Significant reduction in levels or flows in water bodies such as lakes, impoundments, wetlands, springs, streams or other watercourses; or
 - C. Significant inducement of natural or manmade contaminants into a water supply or into a usable portion of an aquifer or water body.
6. Permittee shall notify the District in writing within 30 days of any sale, transfer, or conveyance of ownership or any other loss of permitted legal control of the Project and / or related facilities from which the permitted consumptive use is made. Where Permittee's control of the land subject to the permit was demonstrated through a lease, the Permittee must either submit documentation showing that it continues to have legal control or transfer control of the permitted system / project to the new landowner or new lessee. All transfers of ownership are subject to the requirements of Rule 40D-1.6105, F.A.C. Alternatively, the Permittee may surrender the consumptive use permit to the District, thereby relinquishing the right to conduct any activities under the permit.
7. All withdrawals authorized by this WUP shall be implemented as conditioned by this permit, including any documents submitted as part of the permit application incorporated by reference in a permit condition. This permit is subject to review and modification, enforcement action, or revocation, in whole or in part, pursuant to Section 373.136 or 373.243, F.S.
8. This permit does not convey to the Permittee any property rights or privileges other than those specified herein, nor relieve the Permittee from complying with any applicable local government, state, or federal law, rule, or ordinance.
9. The Permittee shall cease or reduce surface water withdrawal as directed by the District if water levels in lakes fall below the applicable minimum water level established in Chapter 40D-8, F.A.C., or rates of flow in streams fall below the minimum levels established in Chapter 40D-8, F.A.C.
10. The Permittee shall cease or reduce withdrawal as directed by the District if water levels in aquifers fall below the minimum levels established by the Governing Board.

11. A Permittee may seek modification of any term of an unexpired permit. The Permittee is advised that section 373.239, F.S., and Rule 40D-2.331, F.A.C., are applicable to permit modifications.
12. The Permittee shall practice water conservation to increase the efficiency of transport, application, and use, as well as to decrease waste and to minimize runoff from the property. At such time as the Governing Board adopts specific conservation requirements for the Permittee's water use classification, this permit shall be subject to those requirements upon notice and after a reasonable period for compliance.
13. The District may establish special regulations for Water-Use Caution Areas. At such time as the Governing Board adopts such provisions, this permit shall be subject to them upon notice and after a reasonable period for compliance.
14. Nothing in this permit should be construed to limit the authority of the District to declare a water shortage and issue orders pursuant to chapter 373, F.S. In the event of a declared water shortage, the Permittee must adhere to the water shortage restrictions, as specified by the District. The Permittee is advised that during a water shortage, reports shall be submitted as required by District rule or order.
15. This permit is issued based on information provided by the Permittee demonstrating that the use of water is reasonable and beneficial, consistent with the public interest, and will not interfere with any existing legal use of water. If, during the term of the permit, it is determined by the District that a statement in the application and in the supporting data are found to be untrue and inaccurate, the use is not reasonable and beneficial, in the public interest, or does impact an existing legal use of water, the Governing Board shall modify this permit or shall revoke this permit following notice and hearing, pursuant to sections 373.136 or 373.243, F.S. The Permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.
16. Within the Southern Water Use Caution Area, if the District determines that significant water quantity or quality changes, impacts to existing legal uses, or adverse environmental impacts are occurring, the District, upon reasonable notice to the Permittee, including a statement of facts upon which the District based its determination, may reconsider the quantities permitted or other conditions of the permit as appropriate to address the change or impact, but only after an opportunity for the Permittee to resolve or mitigate the change or impact or to request a hearing.
17. All permits are contingent upon continued ownership or legal control of all property on which pumps, wells, diversions or other water withdrawal facilities are located.

Exhibit B
Instructions

METERING INSTRUCTIONS

The Permittee shall meter withdrawals from surface waters and/or the groundwater resources, and meter readings from each withdrawal facility shall be recorded on a monthly basis within the last week of the month. The meter reading(s) shall be reported to the Water Use Permit Bureau on or before the tenth day of the following month for monthly reporting frequencies. For bi-annual reporting, the data shall be recorded on a monthly basis and reported on or before the tenth day of the month following the sixth month of recorded data. The Permittee shall submit meter readings online using the Permit Information Center at www.swfwmd.state.fl.us/permits/epermitting/ or on District supplied scanning forms unless another arrangement for submission of this data has been approved by the District. Submission of such data by any other unauthorized form or mechanism may result in loss of data and subsequent delinquency notifications. Call the Water Use Permit Bureau in Tampa at (813) 985-7481 if difficulty is encountered.

The meters shall adhere to the following descriptions and shall be installed or maintained as follows:

1. The meter(s) shall be non-resettable, totalizing flow meter(s) that have a totalizer of sufficient magnitude to retain total gallon data for a minimum of the three highest consecutive months permitted quantities. If other measuring device(s) are proposed, prior to installation, approval shall be obtained in writing from the Water Use Permit Bureau Chief.
2. The Permittee shall report non-use on all metered standby withdrawal facilities on the scanning form or approved alternative reporting method.
3. If a metered withdrawal facility is not used during any given month, the meter report shall be submitted to the District indicating the same meter reading as was submitted the previous month.
4. The flow meter(s) or other approved device(s) shall have and maintain an accuracy within five percent of the actual flow as installed.
5. Meter accuracy testing requirements:
 - A. For newly metered withdrawal points, the flow meter installation shall be designed for inline field access for meter accuracy testing.
 - B. The meter shall be tested for accuracy on-site, as installed according to the Flow Meter Accuracy Test Instructions in this Exhibit B, every five years in the assigned month for the county, beginning from the date of its installation for new meters or from the date of initial issuance of this permit containing the metering condition with an accuracy test requirement for existing meters.
 - C. The testing frequency will be decreased if the Permittee demonstrates to the satisfaction of the District that a longer period of time for testing is warranted.
 - D. The test will be accepted by the District only if performed by a person knowledgeable in the testing equipment used.
 - E. If the actual flow is found to be greater than 5% different from the measured flow, within 30 days, the Permittee shall have the meter re-calibrated, repaired, or replaced, whichever is necessary. Documentation of the test and a certificate of re-calibration, if applicable, shall be submitted within 30 days of each test or re-calibration.
6. The meter shall be installed according to the manufacturer's instructions for achieving accurate flow to the specifications above, or it shall be installed in a straight length of pipe where there is at least an upstream length equal to ten (10) times the outside pipe diameter and a downstream length equal to two (2) times the outside pipe diameter. Where there is not at least a length of ten diameters upstream available, flow straightening vanes shall be used in the upstream line.
7. Broken or malfunctioning meter:
 - A. If the meter or other flow measuring device malfunctions or breaks, the Permittee shall notify the District within 15 days of discovering the malfunction or breakage.
 - B. The meter must be replaced with a repaired or new meter, subject to the same specifications given above, within 30 days of the discovery.
 - C. If the meter is removed from the withdrawal point for any other reason, it shall be replaced with another meter having the same specifications given above, or the meter shall be reinstalled within 30 days of its removal from the withdrawal. In either event, a fully functioning meter shall not be off the withdrawal point for more than 60 consecutive days.
8. While the meter is not functioning correctly, the Permittee shall keep track of the total amount of time the withdrawal point was used for each month and multiply those minutes times the pump capacity (in gallons per minute) for total gallons. The estimate of the number of gallons used each month during that period shall be submitted on District scanning forms and noted as estimated per instructions on the form. If the data is submitted

by another approved method, the fact that it is estimated must be indicated. The reason for the necessity to estimate pumpage shall be reported with the estimate

9. In the event a new meter is installed to replace a broken meter, it and its installation shall meet the specifications of this condition. The permittee shall notify the District of the replacement with the first submittal of meter readings from the new meter.

FLOW METER ACCURACY TEST INSTRUCTIONS

1. **Accuracy Test Due Date** - The Permittee is to schedule their accuracy test according to the following schedule:
 - A. For existing metered withdrawal points, add five years to the previous test year, and make the test in the month assigned to your county.
 - B. For withdrawal points for which metering is added for the first time, the test is to be scheduled five years from the issue year in the month assigned to your county.
 - C. For proposed withdrawal points, the test date is five years from the completion date of the withdrawal point in the month assigned to your county.
 - D. For the Permittee's convenience, if there are multiple due-years for meter accuracy testing because of the timing of the installation and/or previous accuracy tests of meters, the Permittee can submit a request in writing to the Water Use Permit Bureau Chief for one specific year to be assigned as the due date year for meter testing. Permittees with many meters to test may also request the tests to be grouped into one year or spread out evenly over two to three years.
 - E. The months for accuracy testing of meters are assigned by county. The Permittee is requested but not required to have their testing done in the month assigned to their county. This is to have sufficient District staff available for assistance.

January	Hillsborough
February	Manatee, Pasco
March	Polk (for odd numbered permits)*
April	Polk (for even numbered permits)*
May	Highlands
June	Hardee, Charlotte
July	None or Special Request
August	None or Special Request
September	Desoto, Sarasota
October	Citrus, Levy, Lake
November	Hernando, Sumter, Marion
December	Pinellas

* The permittee may request their multiple permits be tested in the same month.

2. **Accuracy Test Requirements:** The Permittee shall test the accuracy of flow meters on permitted withdrawal points as follows:
 - A. The equipment water temperature shall be set to 72 degrees Fahrenheit for ground water, and to the measured water temperature for other water sources.
 - B. A minimum of two separate timed tests shall be performed for each meter. Each timed test shall consist of measuring flow using the test meter and the installed meter for a minimum of four minutes duration. If the two tests do not yield consistent results, additional tests shall be performed for a minimum of eight minutes or longer per test until consistent results are obtained.
 - C. If the installed meter has a rate of flow, or large multiplier that does not allow for consistent results to be obtained with four- or eight-minute tests, the duration of the test shall be increased as necessary to obtain accurate and consistent results with respect to the type of flow meter installed.
 - D. The results of two consistent tests shall be averaged, and the result will be considered the test result for the meter being tested. This result shall be expressed as a plus or minus percent (rounded to the nearest one-tenth percent) accuracy of the installed meter relative to the test meter. The percent accuracy indicates the deviation (if any), of the meter being tested from the test meter.
3. **Accuracy Test Report:** The Permittees shall demonstrate that the results of the meter test(s) are accurate by submitting the following information within 30 days of the test:
 - A. A completed Flow Meter Accuracy Verification Form, Form LEG-R.014.00 (07/08) for each flow meter tested. This form can be obtained from the District's website (www.watermatters.org) under "ePermitting and Rules" for Water Use Permits.

- B. A printout of data that was input into the test equipment, if the test equipment is capable of creating such a printout;
- C. A statement attesting that the manufacturer of the test equipment, or an entity approved or authorized by the manufacturer, has trained the operator to use the specific model test equipment used for testing;
- D. The date of the test equipment's most recent calibration that demonstrates that it was calibrated within the previous twelve months, and the test lab's National Institute of Standards and Testing (N.I.S.T.) traceability reference number.
- E. A diagram showing the precise location on the pipe where the testing equipment was mounted shall be supplied with the form. This diagram shall also show the pump, installed meter, the configuration (with all valves, tees, elbows, and any other possible flow disturbing devices) that exists between the pump and the test location early noted with measurements. If flow straightening vanes are utilized, their location(s) shall also be included in the diagram.
- F. A picture of the test location, including the pump, installed flow meter, and the measuring device, or for sites where the picture does not include all of the items listed above, a picture of the test site with a notation of distances to these items.

WATER QUALITY INSTRUCTIONS

The Permittee shall perform water quality sampling, analysis and reporting as follows:

1. The sampling method(s) from both monitor wells and surface water bodies shall be designed to collect water samples that are chemically representative of the zone of the aquifer or the depth or area of the water body.
2. Water quality samples from monitor wells shall be taken after pumping the well for the minimum time specified (if specified) or after the water reaches a constant temperature, pH, and conductivity.
3. The first submittal to the District shall include a copy of the laboratory's analytical and chain of custody procedures. If the laboratory used by the Permittee is changed, the first submittal of data analyzed at the new laboratory shall include a copy of the laboratory's analytical and chain of custody procedures.
4. Any variance in sampling and/or analytical methods shall have prior approval of the Water Use Permit Bureau Chief.
5. The Permittee's sampling procedure shall follow the handling and chain of custody procedures designated by the certified laboratory which will undertake the analysis.
6. Water quality samples shall be analyzed by a laboratory certified by the Florida Department of Health utilizing the standards and methods applicable to the parameters analyzed and to the water use pursuant to Chapter 64E-1, Florida Administrative Code, "Certification of Environmental Testing Laboratories."
7. Analyses shall be performed according to procedures outlined in the current edition of Standard Methods for the Examination of Water and Wastewater by the American Public Health Association-American Water Works Association-Water Pollution Control Federation (APHA-AWWA-WPCF) or Methods for Chemical Analyses of Water and Wastes by the U.S. Environmental Protection Agency (EPA).
8. Unless other reporting arrangements have been approved by the Water Use Permit Bureau Chief, reports of the analyses shall be submitted to the Water Use Permit Bureau, online at the District WUP Portal or mailed in hardcopy on or before the tenth day of the following month. The online submittal shall include a scanned upload of the original laboratory report. The hardcopy submittal shall be a copy of the laboratory's analysis form. If for some reason, a sample cannot be taken when required, the Permittee shall indicate so and give the reason in the space for comments at the WUP Portal or shall submit the reason in writing on the regular due date.
9. The parameters and frequency of sampling and analysis may be modified by the District as necessary to ensure the protection of the resource.
10. Water quality samples shall be collected based on the following timetable for the frequency listed in the special condition:

Frequency

Weekly
Quarterly
Semi-annually
Monthly

Timetable

Same day of each week
Same week of **February, May, August, November**
Same week of **May, November**
Same week of each month

WELL CONSTRUCTION INSTRUCTIONS

All wells proposed to be constructed shall be drilled and constructed as specified below:

1. All well casing (including liners and/or pipe) must be sealed to the depth specified in the permit condition.
2. The proposed well(s) shall be constructed of materials that are resistant to degradation of the casing/grout due to interaction with the water of lesser quality. A minimum grout thickness of two (2) inches is required on wells four (4) inches or more in diameter.
3. A minimum of twenty (20) feet overlap and two (2) centralizers are required for Public Supply wells and all wells six (6) inches or more in diameter.
4. Any variation from estimated, maximum or minimum total depths; maximum or minimum casing depths; well location or casing diameter specified in the condition requires advanced approval by the Water Use Permit Bureau Chief, or the Well Construction Section Manager.
5. The Permittee is notified that a proposal to significantly change any of these well construction specifications may require permit modification if the District determines that such a change would result in significantly greater withdrawal impacts than those considered for this Permit.
6. The finished well casing depth shall not vary from these specifications by greater than ten (10) percent unless advance approval is granted by the Water Use Permit Bureau Chief, or the Well Construction Section Manager.

ANNUAL REPORT SUBMITTAL INSTRUCTIONS

The "Public Supply Water Use Annual Report Form," (Form No. LEG-R.023.00 (01/09)), is designed to assist the Permittee with the annual report requirements, but the final authority for what must be included in the Water Use Annual Report is in this condition and in these instructions. Two identical copies of the "Public Supply Water Use Annual Report Form," and two identical copies of all required supporting documentation shall be included if submitted in hard copy. "Identical copy" in this instance means that if the original is in color, then all copies shall also be printed in color. If submitted electronically, only one submittal is required; however, any part of the document that is in color shall be scanned in color.

1. **Per Capita Use Rate** - A per capita rate for the previous calendar year will be progressively calculated until a rate of 150 gpd per person or less is determined whether it is the unadjusted per capita, adjusted per capita, or compliance per capita. The calculations shall be performed as shown in Part A of the Form. The Permittee shall refer to and use the definitions and instructions for all components as provided on the Form and in the Water Use Permit Applicant's Handbook Part B. Permittees that have interconnected service areas and receive an annual average quantity of 100,000 gpd or more from another permittee are to include these quantities as imported quantities. Permittees in the Southern Water Use Caution Area (SWUCA) or the Northern Tampa Bay Water Use Caution Area (NTBWUCA), as it existed prior to October 1, 2007, shall achieve a per capita of 150 gpd or less, and those in these areas that cannot achieve a compliance per capita rate of 150 gpd or less shall include a report on why this rate was not achieved, measures taken to comply with this requirement, and a plan to bring the permit into compliance. Permittees not in a Water Use Caution Area that cannot achieve a compliance per capita rate of 150 gpd or less by December 31, 2019 shall submit this same report in the Annual Report due April 1, 2020.
2. **Residential Use** - Residential water use consists of the indoor and outdoor water uses associated with each category of residential customer (single family units, multi-family units, and mobile homes), including irrigation uses, whether separately metered or not. The Permittee shall document the methodology used to determine the number of dwelling units by type and the quantities used. Estimates of water use based upon meter size will not be accepted. If mobile homes are included in the Permittee's multi-family unit category, the information for them does not have to be separated. The information for each category shall include:
 - A. Number of dwelling units per category,
 - B. Number of domestic metered connections per category,
 - C. Number of metered irrigation connections,
 - D. Annual average quantities in gallons per day provided to each category, and
 - E. Percentage of the total residential water use provided apportioned to each category.
3. **Non-Residential Use** - Non-residential use consists of all quantities provided for use in a community not directly associated with places of residence. For each category below, the Permittee shall include annual average gpd provided and percent of total non-residential use quantities provided. For each category 1 through 6 below, the number of metered connections shall be provided. These non-residential use categories are:
 - A. Industrial/commercial uses, including associated lawn and landscape irrigation use,

- B. Agricultural uses (e.g., irrigation of a nursery),
 - C. Recreation/Aesthetics, for example irrigation (excluding golf courses) of Common Areas, stadiums and school yards,
 - D. Golf course irrigation,
 - E. Fire fighting, system testing and other accounted uses,-
 - F. K-through-12 schools that do not serve any of the service area population, and
 - G. Water Loss as defined as the difference between the output from the treatment plant and accounted residential water use (B above) and the listed non-residential uses in this section.
4. **Water Audit** - The water audit report that is done because water losses are greater than 10% of the total distribution quantities shall include the following items:
 - A. Evaluation of:
 - 1) leakage associated with transmission and distribution mains,
 - 2) overflow and leakage from storage tanks,
 - 3) leakage near service connections,
 - 4) illegal connections,
 - 5) description and explanations for excessive distribution line flushing (greater than 1% of the treated water volume delivered to the distribution system) for potability,
 - 6) fire suppression,
 - 7) un-metered system testing,
 - 8) under-registration of meters, and
 - 9) other discrepancies between the metered amount of finished water output from the treatment plant less the metered amounts used for residential and non-residential uses specified in Parts B and C above, and
 - B. A schedule for a remedial action-plan to reduce the water losses to below 10%.
5. **Alternative Water Supplied other than Reclaimed Water** - Permittees that provide Alternative Water Supplies other than reclaimed water (e.g., stormwater not treated for potable use) shall include the following on Part D of the Form:
 - A. Description of the type of Alternative Water Supply provided,
 - B. County where service is provided,
 - C. Customer name and contact information,
 - D. Customer's Water Use Permit number (if any),
 - E. Customer's meter location latitude and longitude,
 - F. Meter ownership information,
 - G. General customer use category,
 - H. Proposed and actual flows in annual average gallons per day (gpd) per customer,
 - I. Customer cost per 1,000 gallons or flat rate information,
 - J. Delivery mode (e.g., pressurized or non-pressurized),
 - K. Interruptible Service Agreement (Y/N),
 - L. Month/year service began, and
 - M. Totals of monthly quantities supplied.
6. **Suppliers of Reclaimed Water** - Depending upon the treatment capacity of the Permittee's wastewater treatment plant, the Permittee shall submit information on reclaimed water supplied as follows:
 - A. Permittees having a wastewater treatment facility with an annual average design capacity equal to or greater than 100,000 gpd shall utilize the "SWFWMD Annual Reclaimed Water Supplier Report" in Excel format on the Compact Disk, Form No. LEG-R.026.00 (05/09). The "SWFWMD Annual Reclaimed Water Supplier Report" is described in Section 3.1 of Chapter 3, under the subheading "Reclaimed Water Supplier Report" and is described in detail in the Water Use Permit Applicant's Handbook Part B.
 - B. Permittees that have a wastewater treatment facility with an annual average design capacity less than 100,000 gpd can either utilize the "SWFWMD Annual Reclaimed Water Supplier Report," Form No. LEG-R.026.00, as described in sub-part (1) above or provide the following information on Part E of the Form:
 - 1) Bulk customer information:
 - a) Name, address, telephone number,

- b) WUP number(if any),
 - c) General use category (residential, commercial, recreational, agricultural irrigation, mining),
 - d) Month/year first served,
 - e) Line size,
 - f) Meter information, including the ownership and latitude and longitude location,
 - g) Delivery mode (pressurized, non-pressurized).
- 2) Monthly flow in gallons per bulk customer.
 - 3) Total gallons per day (gpd) provided for metered residential irrigation.
 - 4) Disposal information:
 - a) Site name and location (latitude and longitude or as a reference to the service area map),
 - b) Contact name and telephone,
 - c) Disposal method, and
 - d) Annual average gpd disposed.

Authorized Signature

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

This permit, issued under the provision of Chapter 373, Florida Statutes and Florida Administrative Code 40D-2, authorizes the Permittee to withdraw the quantities outlined above, and may require various activities to be performed by the Permittee as described in the permit, including the Special Conditions. The permit does not convey to the Permittee any property rights or privileges other than those specified herein, nor relieve the Permittee from complying with any applicable local government, state, or federal law, rule, or ordinance.

Peace River Hydrobiological Monitoring Program 2018 Update

Prepared for:
Peace River Manasota Regional Water Supply Authority



Prepared by:
Janicki Environmental, Inc.

Janicki Environmental, Inc.

January 2018

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1.0 INTRODUCTION

On December 10, 1975, the Consumptive Use Permit #27500016 for the Peace River Regional Water Supply Facility was signed between General Development Utilities, Inc. and the Southwest Florida Water Management District (District). In conjunction with this agreement, a comprehensive Hydrobiological Monitoring Program (HBMP) was set forth to assess the responses of various physical, chemical, and biological characteristics of the Charlotte Harbor estuary to changes in Peace River flow. The program was designed to evaluate the influences and significance of natural seasonal and annual salinity changes on the aquatic fauna and flora in the lower river/upper harbor estuary, and to determine if freshwater withdrawals by the Peace River Regional Water Supply Facility could be shown to potentially significantly alter these natural patterns. The HBMP design has been modified several times since its inception based on collected data and other considerations. This document provides a brief history of the HBMP and a description of the currently implemented HBMP, and serves as an update to the 1996 HBMP Document.

1.1 DOCUMENT ORGANIZATION

This document is organized as follows:

Chapter 1. Introduction. This chapter provides a brief overview of HBMP background, goals and objectives, monitoring area, and organization of this document.

Chapter 2. HBMP Regulatory Context. This chapter provides a brief overview of the basis for requirement of the HBMP, as well as a description of the adopted Minimum Flows and Levels (MFL) for the Lower Peace River.

Chapter 3. Resource Management Goals. This chapter details the goals and objectives of the HBMP as described in special conditions of the Water Use Permit as well as criteria used in the design of HBMP study elements.

Chapter 4. Monitoring Elements of the Peace River HBMP. This chapter provides specific HBMP monitoring information for the Lower Peace River, as currently implemented by the Peace River Manasota Regional Water Supply Authority (Authority).

Chapter 5. Management Response Plan. This chapter details the hierarchy of management actions proposed under the HBMP to be implemented in response to detected changes in salinity that could forewarn of potential future impacts of sufficient magnitude that they would constitute an “adverse change”.

Chapter 6. HBMP Special Studies. This chapter provides an overview of the special studies currently implemented under the HBMP, designed to answer specific research questions regarding the Lower Peace River and Upper Charlotte Harbor.

1.2 HBMP BACKGROUND

The HBMP was not conceived to be a rigid monitoring program but rather a flexible study design. When the first discussion began with District staff in 1975 regarding what might be included within such a monitoring effort, very little was known about either salinity/flow relationships, or the spatial/temporal distributions of other physical/chemical water quality parameters in the lower Peace River/upper Charlotte Harbor estuary. Even less was known about the biological communities that studies in other estuarine

systems had indicated could potentially be negatively affected by excessive freshwater diversions. In 1976, the initial monitoring elements of the HBMP were designed in coordination with District staff to provide answers to specific questions raised during the original permitting process. These questions raised concerns regarding the potential for negative impacts potentially associated with salinity changes in the lower Peace River/upper Charlotte Harbor estuarine system resulting from freshwater withdrawals. Analysis of data from pre- and post-water treatment plant operation, presented in the August 1982 HBMP Summary Report, indicated the need to revise the monitoring program to better evaluate changes in the Charlotte Harbor system. Revisions to the HBMP monitoring elements were implemented to assess natural seasonal and longer-term variations in freshwater inflows, relative to the magnitude and timing of expected salinity changes due to Facility withdrawals. Further modifications and refinements to the HBMP study elements were made in 1985, 1988, and then again in 1996 in conjunction with the renewal of the Facility's Water Use Permit. The area of study is shown in Figure 1.1 and Table 1.1 provides a timeline of historical and current HBMP elements.

While the overall effort (inflation adjusted) of the monitoring program has remained relatively constant, study elements have been added and deleted in order to enhance the overall knowledge base of the lower Peace River/upper Charlotte Harbor estuarine system. Historically, those major monitoring elements aimed at assessing direct relationships with variations in freshwater inflow have had the longest histories. Other program elements, primarily those focused on assessing indirect biological indicators, have extended over a number of years and then ended once a sufficient baseline level of information had been accumulated. The HBMP should focus monitoring primarily on assessing long-term trends in key physical, chemical and biological characteristic directly related to the Facility's potential influences.

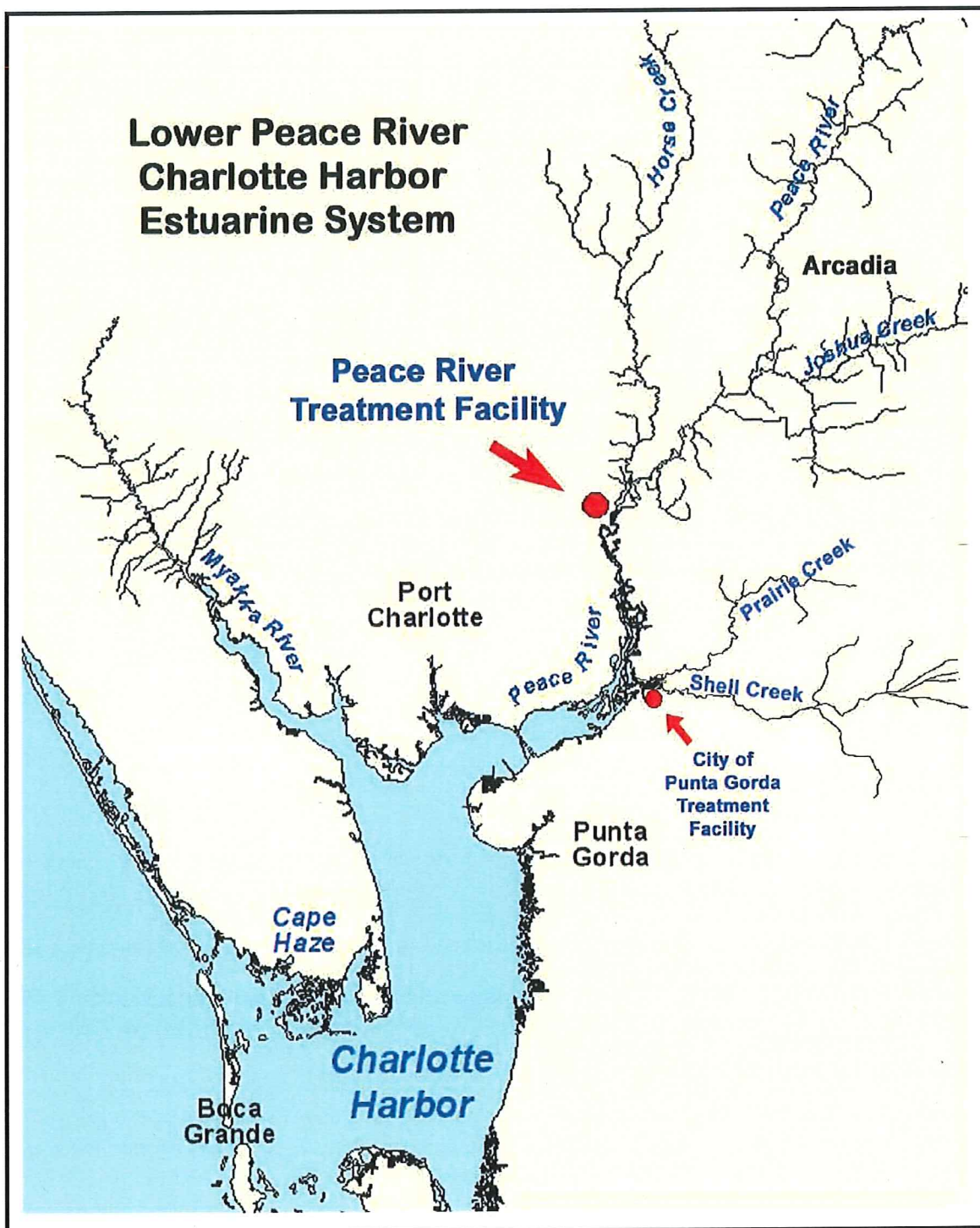


Figure 1.1 HMBP Study Area

Table 1.1 Historic time lines for both ongoing and previous major HBMP study elements																				
	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Indicator Benthic Species																				
Sea Star																				
Upper Harbor Juvenile Fishes																				
Vegetation - Aerial Photography																				
Vegetation - First and Last																				
Vegetation - Transect Sites																				
Isosaline Phytoplankton Primary Production																				
Isosaline Phytoplankton Species Identification																				
Zooplankton (Isosalines)																				
Water Quality (0, 6, 12, 20 ppt Isosalines)																				
Water Quality Lower/Middle Harbor																				
Stations 1, 3, 5, 6																				
Stations 2, 4, 7																				
Water Quality Upper Harbor																				
Station 9																				
Water Quality Lower River																				
Stations 10, 12, 14, 18																				
Stations 16, 20																				
Stations 11, 13, 15, 17, 19																				
Stations 21, 22, 23, 24, 25																				
Continuous Recorders																				
Benthic Invertebrates & Mollusc																				
Larval Fish/Plankton																				

Note: The station locations used in this table refer to the historically used numerical identifications, since not all of the sites in the lower/upper harbor were sampled along the current river kilometer centerline. Table 4.3 provides conversions to the currently used centerline identification system for stations 9 through 25.

↓ Includes *in situ* water column profile and surface water chemistry

↕ Includes both *in situ* water column profile, and top and bottom water chemistry

Table 1.1 Historic time lines for both ongoing and previous major HEMP study elements																							
	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	
Indicator Benthic Species																							
Sea Star																							
Upper Harbor Juvenile Fishes																							
Vegetation - Aerial Photography																							
Vegetation - First and Last																							
Vegetation - Transect Sites																							
Isohaline Phytoplankton Primary Production																							
Isohaline Phytoplankton Species Identification																							
Zooplankton (Isohalines)																							
Water Quality 12, 20 ppt Isohalines (0, 6,																							
Water Quality Lower /Middle Harbor																							
Stations 1, 3, 5, 6																							
Stations 2, 4, 7																							
Water Quality Upper Harbor																							
Station 9																							
Water Quality Lower River																							
Stations 10, 12, 14, 18																							
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Stations 21, 22, 23, 24, 25																							
Continuous Recorders																							
Benthic Invertebrates & Mollusc																							
Larval Fish/Plankton																							

Note: The station locations used in this table refer to the historically used numerical identifications, since not all of the sites in the lower/upper harbor were sampled along the current river kilometer centerline. Table 4.3 provides conversions to the currently used centerline identification system for stations 9 through 25.
 ↓ Includes *in situ* water column profile and surface water chemistry
 ↓ Includes both *in situ* water column profile, and top and bottom water chemistry

1.3 HBMP GOALS AND OBJECTIVES

Water Use Permit No. 20010420.002 was issued by the District to the Authority in March 1996. The permit contained specific conditions for the continuation and enhancement of the lower Peace River/upper Charlotte Harbor estuary HBMP. The HBMP study elements specified in the 1996 permit renewal were designed to build upon and add to the HBMP monitoring activities initiated in 1975.

As defined by the District's 1996 Water Use Permit (WUP) conditions, the primary focus and overall objective of the HBMP is to assess the following key issues:

- Monitor river withdrawals from the Peace River by the Facility and evaluate gaged tributary flows from Joshua, Horse, and Shell Creeks, as well as the primary Peace River flows measured at Arcadia and direct rainfall to the lower Peace River.
- Evaluate relationships between the ecology of the lower Peace River/upper Charlotte Harbor estuary and freshwater inflows.
- Monitor selected water quality and biological variables in order to determine whether the ecological characteristics of the estuary related to freshwater inflows are changing over time.
- Determine the relative degree and magnitude of effects of Peace River withdrawals by the Facility on ecological changes that may be observed in the lower Peace River/upper Charlotte Harbor estuarine system.
- Evaluate whether consumptive freshwater withdrawals significantly contribute to any adverse ecological impacts to the estuary resulting from extended periods of low freshwater inflows.
- Evaluate whether the withdrawals have had any significant effects on the ecology of the estuary, based on related information such as nutrient loadings, fish abundance, or seagrass distribution data collected as part of other studies conducted by the District or other parties.

The overall primary goal of both the historic and current HBMP study elements has been to provide the District with sufficient information to determine whether the biological communities of the lower Peace River/upper Charlotte Harbor estuarine system have been, are being, or may be adversely impacted by permitted freshwater withdrawals by the Authority's water treatment Facility.

Current monitoring elements are detailed in Chapter 4.

2.0 HBMP REGULATORY CONTEXT

This chapter provides a brief overview of the basis of requirement for the HBMP, as well as a description of the adopted Minimum Flows and Levels (MFL) for the Lower Peace River.

2.1 WATER USE PERMIT REQUIREMENTS

A twenty-year renewal of the Facility's Water Use Permit (WUP) was issued by the District to the Authority in March 1996. The permit contained specific conditions for the continuation and enhancement of specific study elements for the ongoing Lower Peace River/Upper Charlotte Harbor Estuary HBMP. The permit was subsequently modified in 2011 (WUP No. 20010420.008) as a result of two significant factors. The first was the adoption in April 2011 of a Minimum Flows and Levels (MFL) leading to a revised District permitted withdrawal schedule for the Authority. The second factor was an extension of the permit expiration. Special Condition 19 of the modified permit requires that the "Permittee shall continue implementation of the Peace River Hydrobiological Monitoring Program (HBMP) which was incorporated into this permit on March 26, 1996".

In addition to other requirements, District WUP applicants must demonstrate reasonable assurance that the consumptive use will not cause harm to the water resources of the area in any of the following ways (40D-2.301.2.g, F.A.C.):

1. Will not cause harmful water quality impacts to the water source resulting from the withdrawal or diversion;
2. Will not cause harmful water quality impacts from dewatering discharge to receiving waters;
3. Will not cause harmful saline water intrusion or harmful upconing;
4. Will not cause harmful hydrologic alterations to natural systems, including wetlands or other surface waters; and
5. Will not otherwise cause harmful hydrologic alterations to the water resources of the area.

The District's Basis of Review has established a specific series of performance standards for WUPs associated with withdrawals from natural surface waterbodies, such as the Peace River.

- Flow rates shall not deviate from the normal rate and range of fluctuation to the extent that water quality, vegetation, and animal populations are adversely impacted in streams and estuaries.
- Flow rates shall not be reduced from the existing level of flow to the extent that salinity distributions in tidal streams and estuaries are significantly altered as a result of withdrawals.
- Flow rates shall not deviate from the normal rate and range of fluctuation to the extent that recreational use or aesthetic qualities of the water resource are adversely impacted

Additionally, any permitted withdrawals must be in accordance with any pertinent, adopted MFL.

2.2 DISTRICT MINIMUM FLOWS AND LEVELS (MFLs)

Although an adopted minimum flow and level (MFL) for a water body may not by itself provide sufficient reasonable assurance that withdrawals consistent with the MFL will not impact natural resources, adopted MFLs are relevant to the Peace River HBMP for several reasons. First, the WUP supported by the HBMP must be consistent with applicable MFLs for the River. Second, data, thresholds, statistical analyses, and hydrodynamic models used to establish the MFLs may also be used to assess the effects of Authority withdrawals.

The District is required to establish minimum flows and levels (MFLs) for surface water bodies, including rivers, streams and estuaries, to identify the limit at which further withdrawals would be significantly harmful to the water resources or the ecology of the area. District work on development of MFLs for the Lower Peace River was initiated in 2007, and was based on goals that included maintaining freshwater at the Authority's withdrawal facility on the Lower Peace River and biologically-relevant salinities throughout the Lower Peace River. After passing through many reviews, including independent scientific peer review, MFLs for the Lower Peace River were adopted into the District's Water Levels and Rates of Flow rules (specifically Rule 40D-8.041(8), Florida Administrative Code or F.A.C.) in July 2010 and became effective in August 2010. The approach utilized was to protect the flow regime, which is necessary to protect the ecology of the system.

As part of the process to determine the appropriate MFL and ensure protection of the flow regime, the District analyzed historic and current flow conditions to better understand the existing anthropogenic influence on the system. To better understand natural and anthropogenic influences on the system, climatic variability and long-term oscillations were accounted for in the review of historical hydrologic conditions. Seasonal blocks were defined based on typical low, medium and high flow periods of the year. The 'building block' approach which has been the preferred District method for determining minimum flows and levels was used in determining these MFLs. A low-flow threshold (below which withdrawal is not allowed) was determined, and the percent of flow method was used to determine allowable withdrawals when flows exceed the low-flow threshold.

The low-flow threshold for the Peace River was based on the operational capability of the Authority's Facility on the Peace River. Empirical analysis indicated that saline waters would be present at the withdrawal point when the combined flows of the Peace River at the Arcadia gauge, Joshua Creek at Nocatee, and Horse Creek near Arcadia are below 130 cfs. When the combined flow is below 130 cfs facility operations are limited by the presence of high-conductivity water, which is not suitable for water supply.

If flow is greater than 130 cfs the MFL protects the typical salinity distribution in the lower Peace River. Specifically, the MFL determined the acceptable percent of flow reduction to maintain the 2, 5 and 15 practical salinity units (psu) zones. Additionally, a portion of the lower Peace River has been shown to have high levels of fish abundance and diversity. The typical salinity levels in this portion of the river are 8 to 16 psu. Therefore, an additional analysis based on maintaining the 8 to 16 psu salinity range within that portion of the river was conducted. Based upon the results of these analyses the allowable percent withdrawals from the lower Peace River are:

- Block 1 (April 20 to June 25): 16% of flow.
- Block 2 (October 27 to April 19): 16% of flow when flow is at or below 625, 29% of flow when flow is above 625 cfs.
- Block 3 (June 26 to October 26): 16% of flow when flow is at or below 625 cfs, 38% of flow when flow is above 625 cfs.

The flow referenced in the above bullets is the combined flows (as measured by the USGS gages) of the Peace River at the Arcadia gauge, Joshua Creek at Nocatee, and Horse Creek near Arcadia. Additionally, a maximum flow withdrawal of 400 cfs was instituted. The analyses conducted indicate that surface water withdrawals at these levels are protective of the ecology of the lower Peace River.

The Lower Peace River MFL rule specified that the MFLs will be reevaluated to incorporate additional ecological data for the Lower Peace River within 5 years of rule adoption. In response to this timeline, the District prepared an initial MFLs reevaluation report and scheduled completion of a more comprehensive reevaluation for the latter part of 2018. The timeline for the more comprehensive reevaluation was developed to allow for incorporation of additional ecological data that are expected to strengthen the technical basis for the reevaluation. Analyses to be incorporated into the reevaluation include: 1) running a hydrodynamic model for baseline and reduced flow scenarios, 2) characterization of floodplain features/habitats and how these habitats may be affected by changes in river flows, and 3) habitat suitability modeling for evaluation of the abundance and distribution of six fish species that are known to be responsive to freshwater inflows (District personal communication August 2017).

3.0 RESOURCE MANAGEMENT GOALS

Since its inception, the HBMP has incorporated numerous study elements directed toward assessing both the overall “health of the estuary” as well as determining impacts potentially associated with the Facility’s withdrawals. Figure 3.1 depicts a basic, simplified conceptual estuarine model of the primary mechanisms through which freshwater withdrawals may impact lower river/upper harbor resources, and which served as the basis for the initial development of the HBMP.

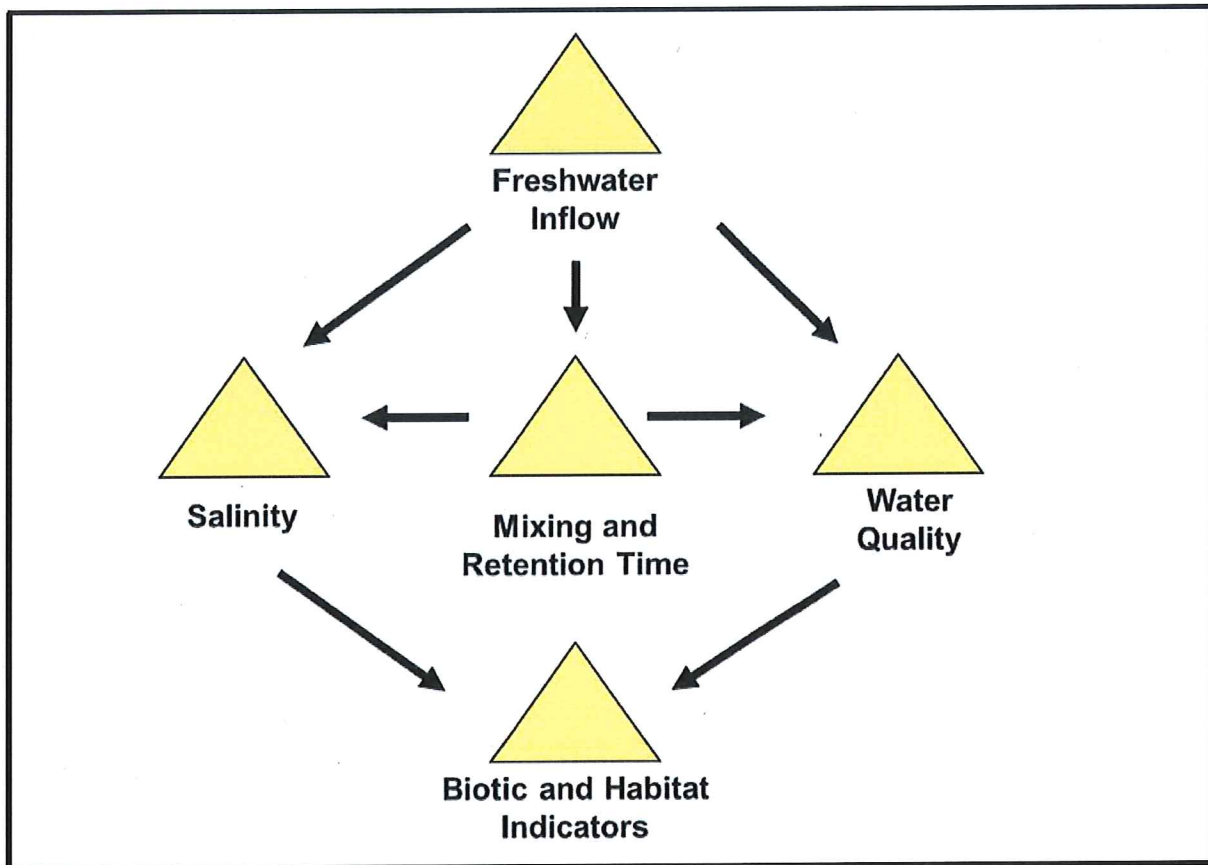


Figure 3.1 Basic conceptual model of potential impact mechanisms of surface water withdrawals

A more detailed conceptual model (Figure 3.2) relative to the pathways through which Facility withdrawals have some potential to impact estuarine resources was developed as part of the 2002 HBMP Comprehensive Summary Report and will be referenced again in later paragraphs of this chapter.

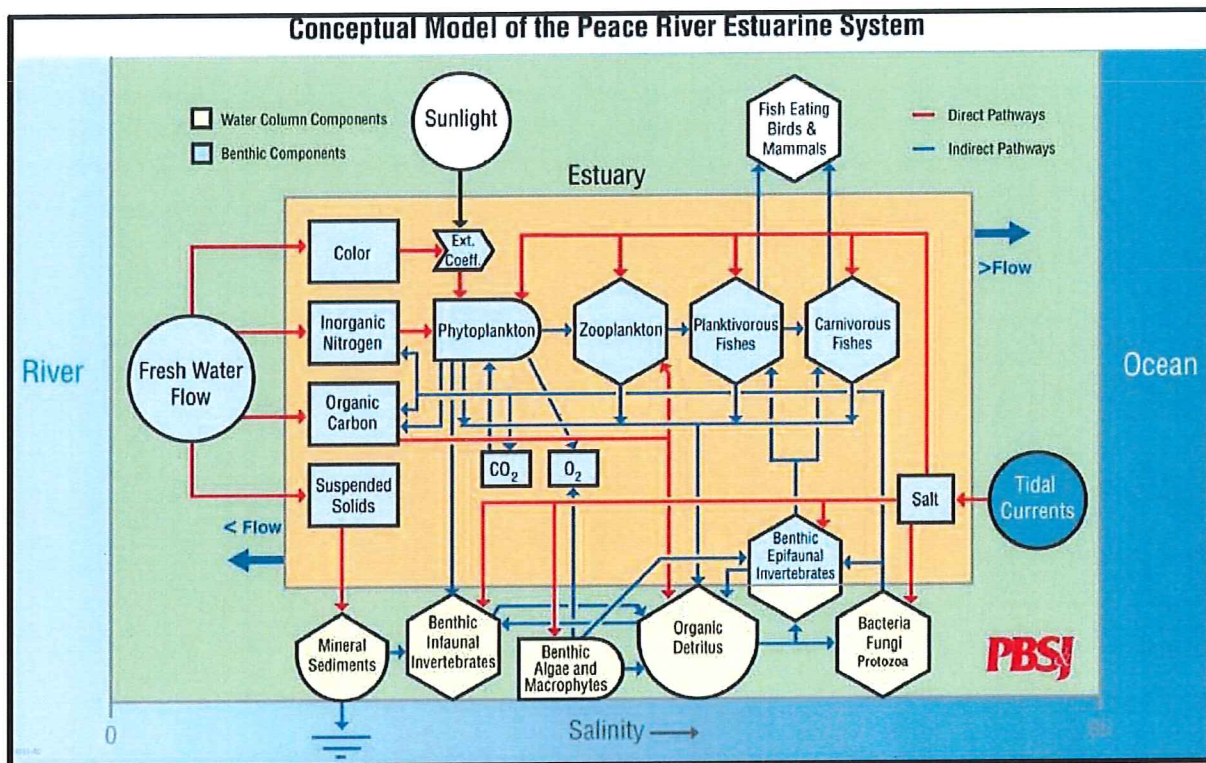


Figure 3.2 HBMP conceptual model of primary impact mechanisms of facility surface water withdrawals

This chapter further details HBMP resource management goals and relevant design criteria.

3.1 HBMP MONITORING OBJECTIVES

The HBMP design needs to cost-effectively address the articulated goals and objectives delineated in the Southwest Florida Water Management District's (District) specific WUP conditions. The combined elements of the program's design need to specifically meet the expectations and objectives set forth in the WUP's "specific conditions", as well as provide sufficient long-term information on which to base the development of answers to potential future questions that might be expected to arise.

The following summarizes the primary monitoring objectives of the HBMP study elements, as contained within the Authority's 1996 WUP's specific conditions:

- Monitor withdrawals from the Peace River Facility (Facility) and evaluate data as provided by the District for the gaged tributary flows from Joshua, Horse and Shell creeks, as well as the primary Peace River flows measured at Arcadia, and direct rainfall to the lower Peace River.
- Evaluate relationships between the ecology of the lower Peace River/upper Charlotte Harbor Estuary and freshwater inflows.
- Monitor selected water quality and biological variables in order to determine whether the ecological characteristics of the estuary related to freshwater inflows are changing over time.

- Determine the relative degree and magnitude of effects of Peace River withdrawals by the Facility on ecological changes that may be observed in the lower Peace River/upper Charlotte Harbor estuarine system.
- Evaluate whether consumptive freshwater withdrawals significantly contribute to any adverse ecological impacts to the estuary resulting from extended periods of low freshwater inflows.
- Evaluate whether the withdrawals have had any significant effects on the ecology of the estuary, based on related information such as nutrient loadings, fish abundance, or seagrass distribution data collected by other studies conducted by the District or other parties.

The overall goal of the HBMP continues to be to provide both the District and the Authority's respective Governing Boards with sufficient information to determine whether the water quality characteristics and biological communities of the lower Peace River/upper Charlotte Harbor estuarine system have been, are being, or may be significantly adversely impacted by permitted Facility withdrawals. A secondary objective has historically been to develop an ongoing base of ecological information sufficient to provide the District with critical information regarding the overall status and relative "health" of the lower Peace River/upper Charlotte Harbor estuarine system, by evaluating the status and trends of selected water quality and biological parameters.

3.2 HBMP DESIGN CRITERIA

In order to effectively meet these goals and objectives, the integrated design of HBMP elements should incorporate the following criteria:

- The program needs to identify those appropriate physical and biological indicators, and specific mechanisms of action, potentially subject to significant changes resulting from the Facility's permitted freshwater withdrawals from the lower Peace River/upper Charlotte Harbor estuarine system.
- The program should determine and predominantly focus its efforts in those geographical regions of the lower river/upper Harbor where naturally occurring and Facility induced changes in flows would be expected to result in the greatest potential observed changes in identified key estuarine characteristics.
- The design of the HBMP monitoring element should include sufficient spatial and temporal intensity to assure detection of measurable changes in selected physical/chemical/biological parameters resulting from changes in freshwater inflows.

It is, therefore, important that the following be clearly delineated for each of the HBMP study elements in order to meet these design criteria, and provide technically supportable data:

- The goals, objectives and specific sampling parameters need to be defined. This should include the specific purpose and application of each monitoring parameter.
- The sampling and analytical data gathering procedures need to be thoroughly described, specifically detailing the required temporal and spatial density of data collection.
- Data acquisition quality control and assurance methodologies need to be described, as well as potential methodologies and procedures for data analysis.

It is also important that each HBMP study element, as well as the overall program, have specific clearly stated goals and objectives to cost-effectively meet the design criteria needed to accomplish the monitoring program's multiple expectations. These goals and objectives need to clearly establish the scientific basis needed to provide sufficient information to meet the District's criteria for required reasonable assurance. It is also essential that the HBMP study elements delineate the types and amounts of monitoring data necessary to construct, calibrate, and verify the quantitative models needed to evaluate both current as well as possible future alternative withdrawal strategies under the District's established Minimum Flows and Levels (MFL) criteria.

Sometimes a well-designed monitoring program can still result in unanswered questions concerning key environmental processes or potential impacts. It is therefore important that the HBMP design criteria provide for opportunities, where feasible, to include the incorporation of short-term, intensive monitoring elements needed to provide answers to specific questions or issues that may arise periodically during the review process. The HBMP design elements further need to be sufficiently flexible to allow incorporation of modifications when and where changes in conditions, or new gathered information, suggest the need for specific monitoring program changes.

4.0 MONITORING ELEMENTS OF THE PEACE RIVER HBMP

The HBMP has evolved through the past 42 years with the current HBMP elements evolving from the HBMP study elements specified in the 1996 WUP and that 1996 effort was designed to build upon and add to the HBMP monitoring activities initiated in 1975.

As defined by the District's 1996 WUP conditions, the primary focus and overall objective of the HBMP was to assess the following key issues:

- Monitor river withdrawals from the Peace River by the Facility and evaluate gaged tributary flows from Joshua, Horse, and Shell Creeks, as well as the primary Peace River flows measured at Arcadia and direct rainfall to the lower Peace River.
- Evaluate relationships between the ecology of the lower Peace River/upper Charlotte Harbor estuary and freshwater inflows.
- Monitor selected water quality and biological variables in order to determine whether the ecological characteristics of the estuary related to freshwater inflows are changing over time.
- Determine the relative degree and magnitude of effects of Peace River withdrawals by the Facility on ecological changes that may be observed in the lower Peace River/upper Charlotte Harbor estuarine system.
- Evaluate whether consumptive freshwater withdrawals significantly contribute to any adverse ecological impacts to the estuary resulting from extended periods of low freshwater inflows.
- Evaluate whether the withdrawals have had any significant effects on the ecology of the estuary, based on related information such as nutrient loadings, fish abundance, or seagrass distribution data collected as part of other studies conducted by the District or other parties.

The overall primary goal of both the historic and current HBMP study elements has been to provide the District with sufficient information to determine whether the biological communities of the lower Peace River/upper Charlotte Harbor estuarine system have been, are being, or may be adversely impacted by permitted freshwater withdrawals by the Authority's water treatment Facility.

Current HBMP monitoring elements are described in the paragraphs to follow.

4.1 PHYSICAL MONITORING

The USGS began a cooperative water quality data collection program with the Authority in August 1996. In addition to specific conductance, salinity and temperature (see Section 4.3), three USGS gaging sites record water levels at 15-minute intervals throughout the study area (Table 4.1).

Table 4.1 Summary USGS water level recorders in the HBMP study area

Gage ID Location	Begin Date	River Kilometer
HH (USGS - 02297460) – Dock at Harbour Heights	Sep. 1996	RK 15.5
PRH (USGS - 02297350) – Dock at Peace River Heights gage	Nov. 1997	RK 26.7
PRP (USGS – 02297345) – Peace River at Platt (Facility)	Dec. 2009	RK 29.8

4.2 WATER CHEMISTRY AND WATER COLUMN PHYSICAL PROFILES

Two separate HBMP study elements (isohaline-based and fixed-station sampling) incorporate in situ water column profile physical measurements with the collection of chemical water quality sampling along the monitoring transect. In addition, both efforts measure the penetration of photosynthetically active radiation (PAR) to determine ambient extinction coefficients at specific sampling locations.

Several goals are associated with both the individual and combined findings of these water quality HBMP study elements. A principal goal of both monitoring efforts is to assess the overall “health of the estuary” by collecting sufficient long-term data to statistically describe spatial and seasonal variability of the water quality characteristics of the lower Peace River/upper Charlotte Harbor estuary, and test for significant changes over time (trends). A further goal of these HBMP elements is to determine whether significant relationships exist between freshwater inflows and the seasonal/spatial variability of key selected water quality parameters. If such relationships can be shown, then the ultimate goal becomes to determine the potential magnitude of change that might result from both existing permitted withdrawals and any future modifications, and compare such predicted changes due to withdrawals with the normal ranges of observed natural seasonal and annual variability.

4.2.1 Moving Isohaline-Based Sampling

During the first week of each month, water quality measurements (physical and chemical) are conducted at four “moving” salinity-based isohaline locations (0, 6, 12, and 20 psu) along a river kilometer centerline running from the imaginary “mouth” of the Peace River upstream to above its junction with Horse Creek, and downstream to Boca Grande Pass. The selection of the salinity-based sampling zones was originally established on a literature review of known spatial estuarine differences among the major plankton groups:

- Oligohaline Conditions = 0 psu (defined as upstream of 500 us/cm conductivity)
- Lower Mesohaline = 5-7 psu
- Upper Mesohaline = 11-13 psu
- Upper Brackish = 20-22 psu

The relative monthly location of each sampling event is based on the first occurrence of these specific isohalines (+/- 0.5 psu), with freshwater being defined as the first occurrence of conductivities less than 500 us/cm (or until reaching the upstream Horse Creek confluence at RK 34.1).

Surface water samples are taken monthly at the four isohaline locations. The parameters measured for each water sample are presented in Table 4.2. The locations of the salinity-based stations are recorded as

kilometers in the river channel upstream of the river mouth and expressed as isohaline locations. At each station on each date, vertical profiles of salinity, specific conductance, temperature, pH, and dissolved oxygen are taken at surface, one-half meter intervals and bottom. Light profiles are taken using a LICORR photometer or another comparable instrument that meets District specifications. Light penetration profiles are recorded in depth increments consistent with methods previously used in the monitoring program. Light extinction coefficients are computed for each site.

Table 4.2 HBMP chemical water quality parameters analyzed in isohaline-based and fixed-station sampling

Salinity	Ammonia/Ammonium Nitrogen
Chloride	Total Kjeldahl Nitrogen
Color	Total Nitrogen
Iron	Suspended Solids
Ortho-Phosphorus	Volatile Solids
Nitrate + Nitrite Nitrogen	Chlorophyll <i>a</i>

Monthly data are available for this element for the period 1983-present.

4.2.2 Fixed-Station Sampling

Approximately two weeks after the collection of the “moving” isohalines, water column physical profiles and light profiles are conducted, near high tide, at 16 “fixed” locations along the monitoring transect (Figure 4.1) The transect runs from just below the river’s mouth (RK -2.4) upstream to a point just above the Peace River Facility (RK 30.7; Figure 4.1 and Table 4.3). In addition, surface and bottom chemical water quality grab samples are taken at five of these locations (Table 4.3). The grab samples are analyzed for the same chemical water quality parameters as samples from the isohaline-based stations (Table 4.2). Monthly data are available for this element over two periods: 1976-1989 and 1996-present.

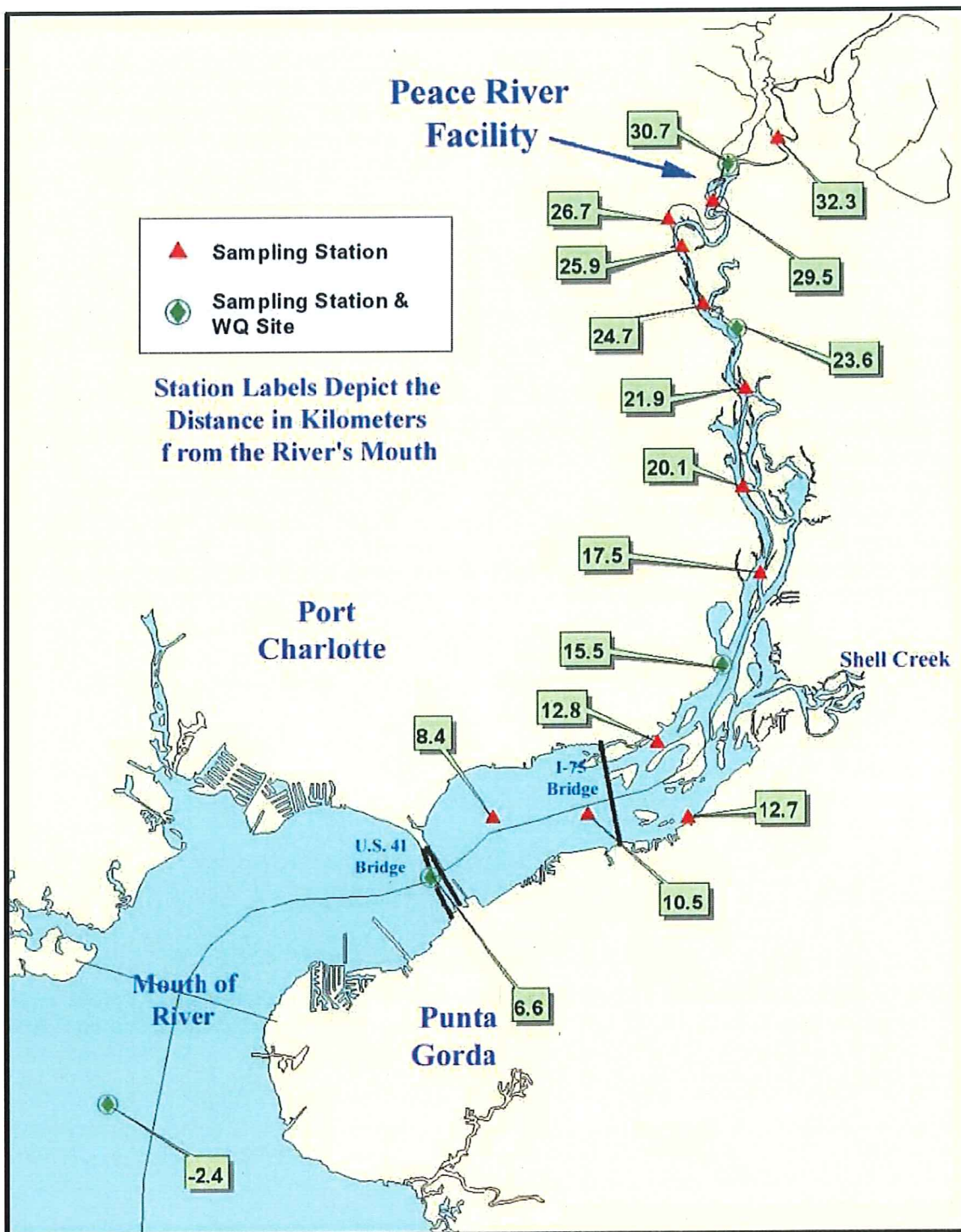


Figure 4.1 Fixed Station Locations

Table 4.3 Ongoing HBMP fixed sampling locations and type of sampling at each						
Historical Station Number*	River Kilometer	Longitude	Latitude	Surface and Bottom Grab	Vertical Profile	Light Profile
9	-2.4	-82.120804997	26.899462366	X	X	X
10	6.6	-82.060335575	26.943926379	X	X	X
21	8.4	-82.045251812	26.956677340		X	X
11	10.5	-82.024836333	26.957901173		X	X
92 (Shell Creek 9)	12.7	-81.998868748	26.961155578		X	X
22	12.8	-82.008383037	26.971124186		X	X
12	15.5	-81.992389772	26.986902711	X	X	X
23	17.5	-81.986780641	27.006003452		X	X
13	20.1	-81.989252945	27.023380201		X	X
24	21.9	-81.990176913	27.043555811		X	X
14	23.6	-81.991086233	27.055822432	X	X	X
25	24.7	-82.000788033	27.061685745		X	X
15	25.9	-82.004641029	27.072758504		X	X
17	29.5	-81.999043967	27.082132965		X	X
18	30.7	-81.993801633	27.088900987	X	X	X
19	32.3	-81.982998819	27.092769561		X	X

*Station numbers as utilized in Table 1.1, prior to standardization of stations to river kilometer.

4.3 CONTINUOUS RECORDERS (USGS AND AUTHORITY)

During the 1996 permit renewal, the need was identified to begin collecting salinity data at fixed points along the HBMP monitoring longitudinal transect at much greater frequencies than the ongoing monthly monitoring. Such information, combined with corresponding tide/wind influenced gage height, freshwater flows, and withdrawals could then be used to develop detailed spatial and temporal relationships through the development of statistical and/or mechanistic models. These models would allow increased accuracy in assessing the relative magnitudes of short and longer-term salinity changes due to permitted Facility withdrawals. Such salinity changes are expected to result from the interactions and combined influences of seasonally varying withdrawals with natural variations in both flows and tides. Secondly, continuous recorders might be used to assess potential long-term changes in river salinity, which might be explained by future predicted long-term progressive increases in sea level.

Following the 1996 renewal of the Facility WUP, two initial subsurface/near bottom 15-minute recorder locations were established in the lower Peace River by the United States Geological Survey (USGS). The Authority itself subsequently deployed three additional continuous subsurface salinity recorders in December of 2005, two additional recorders again in May 2008, and recently three more recorders at the end of June 2011. In December 2009, USGS installed another location, consisting of a pair of near surface and near bottom continuous recorders, immediately adjacent to the Facility's river intake structure. The three USGS recorder locations provide the Authority the ability to assess river conductance both downstream and at the Facility in real time, in order to prevent the withdrawal of higher conductance water during lower flows above the 130 cfs threshold. The relative locations of the recorder array along the lower Peace River HBMP monitoring transect are depicted in Figure 4.2 and further summarized in Table 4.3

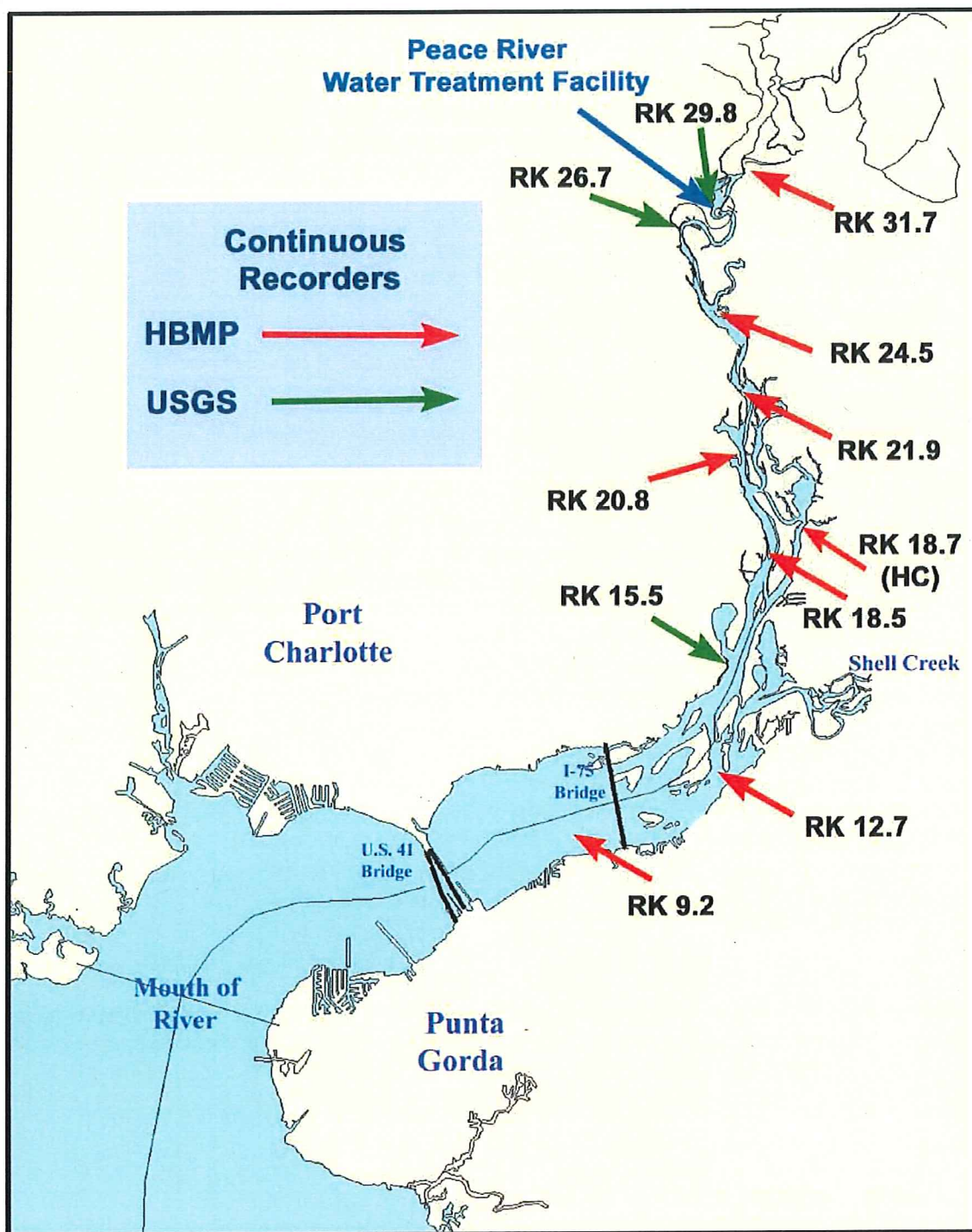


Figure 4.2 Current locations of USGS and Authority (HBMP) continuous recorders

Table 4.3 HBMP continuous recorder locations							
Station ID	Agency	Structure Type	Year Began	Latitude Degrees	Latitude Minutes	Longitude Degrees	Longitude Minutes
RK 9.2	Authority	Navigation Marker	2011	26	57.182	82	2.127
RK 12.7	Authority	Manatee Sign	2011	26	57.708	81	59.961
RK 15.5	USGS (02297460)	Dock	1996	26	59.233	81	59.667
RK 18.5	Authority	Navigation Marker	2011	27	0.831	81	58.998
HC 18.7 (Hunter Creek)	Authority	Manatee Sign	2011	27	0.904	81	58.629
RK 20.8	Authority	Navigation Marker	2011	27	1.968	81	59.488
RK 21.9	Authority	Manatee Sign	2005	27	2.581	81	59.357
RK 24.5	Authority	Manatee Sign	2005	27	3.648	81	59.959
RK 26.7	USGS (02297350)	Dock	1997	27	4.633	82	0.450
RK 29.8	USGS (02297345)	Facility Intake	2009	27	5.200	81	59.967
RK 31.7	Authority	Railroad Bridge	2008	27	5.374	81	58.840

4.4 REPORTING

Reports are submitted to the District in five-year cycles as described below.

Annual Data Reports

Reports for years one through four of each five-year cycle will be annual data reports containing all raw data collected during that year. In addition to the raw data, the annual data reports include a brief overview of the history of the HBMP, as well as limited comparisons between the annually collected HBMP data, and similar historically collected information. A description of any problems encountered or important observations made during the reporting year will also be included. Data reports shall be submitted by July 1st of the year following the end of the data collection year.

Comprehensive Summary Reports

The year five report will be a comprehensive, interpretive report that analyzes all continuing data collected to that point in time. This report will examine long-term trends for important variables and relationships between ecological characteristics and freshwater inflows. The report will analyze the status of the harbor with regard to freshwater inflows and determine if the biological health and productivity of the estuary are showing signs of stress related to natural periods of low freshwater inflows and potential associated influence from withdrawals by the Peace River Facility. The proportion of the freshwater flow budget of the estuary that is reduced by withdrawals will be determined and the relative effect of withdrawals on the ecology of the estuary will be analyzed.

The design of the HBMP will be reviewed and re-evaluated in each year five report. Modifications to the monitoring program can be recommended in the year five reports, or at an interim time if approved by the District. The year five reports will be the primary documents for evaluating the presence or absence of adverse ecological impacts, the significance of Peace River Facility withdrawals to such impacts, and environmental considerations for increased withdrawals from the river. The effectiveness of the withdrawal schedule for preventing adverse environmental impacts will be evaluated. Environmental factors related to expansion of the diversion and water storage facilities and the feasibility of increased water supplies will be evaluated.

To facilitate the communication of the results of the HBMP the Authority recommends a meeting and presentation to District staff every 5 years in conjunction with the Summary Reports. Changes in the HBMP would also be considered at those 5-year meetings.

Year five comprehensive reports shall be submitted by October 1st of the year following the end of the previous data collection year. Reports for year five will be submitted first as drafts, subject to District review and approval. The District shall review draft reports and provide written comments within 45 days following submittal by the Authority. Final reports shall be submitted by the Authority within 90 days of receipt of the District comments.

Depending on the timing of proposed facility expansions, the submittal of the year five report can be adjusted to provide a more timely assessment of environmental factors related to increased water supplies and diversions from the river. For example, the interpretive report could be submitted in year four or six if necessary. If such an adjustment appears beneficial, the District and the Authority will mutually agree to adjust the deadline for the interpretive monitoring report at least ten (10) months in advance of the adjusted deadline for the interpretive report.

5.0 MANAGEMENT RESPONSE PLAN

This chapter details the hierarchy of management actions proposed under the HBMP to be implemented in response to detected changes that could forewarn of potential future impacts of sufficient magnitude that they would constitute an “adverse change”. Waiting until an adverse environmental impact has occurred to initiate appropriate management actions or remedial measures reduces the opportunity to adequately protect resources that may be at risk. Therefore, the Authority has adopted a Management Response Plan (MRP) that is a proactive approach to protecting the resources of concern in the lower Peace River estuarine system.

5.1 RATIONALE FOR DEFINING SIGNIFICANT ENVIRONMENTAL CHANGE

Inherent in the District rules is the recognition that surface water withdrawals in riverine systems are linked to potential changes in salinity, associated changes in water quality constituents (through either changes in loadings and/or dilution) and ultimately the biological communities of the lower river/upper harbor estuarine system. Freshwater withdrawals have a direct and instantaneous physical effect on salinity, while the effects of freshwater withdrawals on other water quality constituents, and biological communities in particular, are typically indirect and more complex (see previously presented Figure 3.2). Such indirect impacts are mediated by physical and chemical processes, and if they manifest, it is typically on slower time scales (i.e. weeks, months, or seasons).

District staff is responsible for the interpretation of data collected from the HBMP and other sources to determine if the permitted Facility surface water withdrawals have caused, or have a high potential of causing harm to the lower Peace River/upper Charlotte Harbor estuarine systems. The term “adverse impact”, which is included in the Authority’s WUP, has a distinct legal meaning in the context of WUP permitting. There was concern that delaying action until this regulatory threshold had been crossed limited the ability to avoid perceived potential impacts. Therefore, based on consultation with District staff, the 2002 Peace River Comprehensive Summary Report proposed that the less restrictive term “significant environmental change” be used by the Authority as a lower threshold criterion for assessing the findings of the HBMP.

The following definition of “significant environmental change” has been revised slightly from that originally proposed to include not only differences from the pre-withdrawal condition (before 1980), but also to incorporate comparisons between more recent periods and conditions under differing permitted withdrawals.

Significant Environmental Change

A detected change, supported by statistical inference or a preponderance of evidence, in the normal or previous abundance, distribution, species composition, or species richness of biological communities of interest in the lower Peace River and upper Charlotte Harbor that is directly attributable to reductions in freshwater inflows caused by permitted surface water withdrawals.

Conditions meeting the working definition of “significant environmental change” stated above could be measured and described in many different ways. As one example, significant environmental changes in lower river/upper harbor habitats could include measurable spatial and temporal changes in the natural variability of the salinity structure of characteristic fixed and/or dynamic estuarine components of sufficient

magnitude to alter effected biological communities. The Authority's Management Response Plan (MRP) to potential observed significant environmental change is described below.

5.2 SALINITY AS THE PRIMARY INDICATOR

Given that freshwater withdrawals have a direct physical effect on salinity, while the effects of freshwater withdrawals on other water quality constituents, and biological communities in particular, are typically indirect and more complex, the plan recommends that salinity deviations be used as the primary indicator of significant environmental change that could lead to potential adverse environmental impact. In addition, salinity deviations will be used as the triggering mechanism for a range of management responses aimed at reversing or minimizing the change to prevent potential adverse environmental impact.

An example of a hypothetical salinity deviation is illustrated in Figure 5.1. A comparison of salinity distributions within the Lower Peace River will be done by estimating the area under two curves. The first of these curves is the target salinity distribution, illustrated by the solid black line in Figure 5.1. The second curve is the hypothetical salinity distribution, illustrated by the dashed red line in Figure 5.1. The difference in areas under the two curves can be used as a measure of change in the salinity distribution.

Salinity deviations from the target distribution (Figure 5.1) will be evaluated in terms of magnitude, spatial extent, and/or temporal duration to develop a decision tree that is linked to various management actions (Figure 5.2). Using this approach, the intensity and urgency of the management response would be appropriately linked to the degree of the observed salinity deviations.

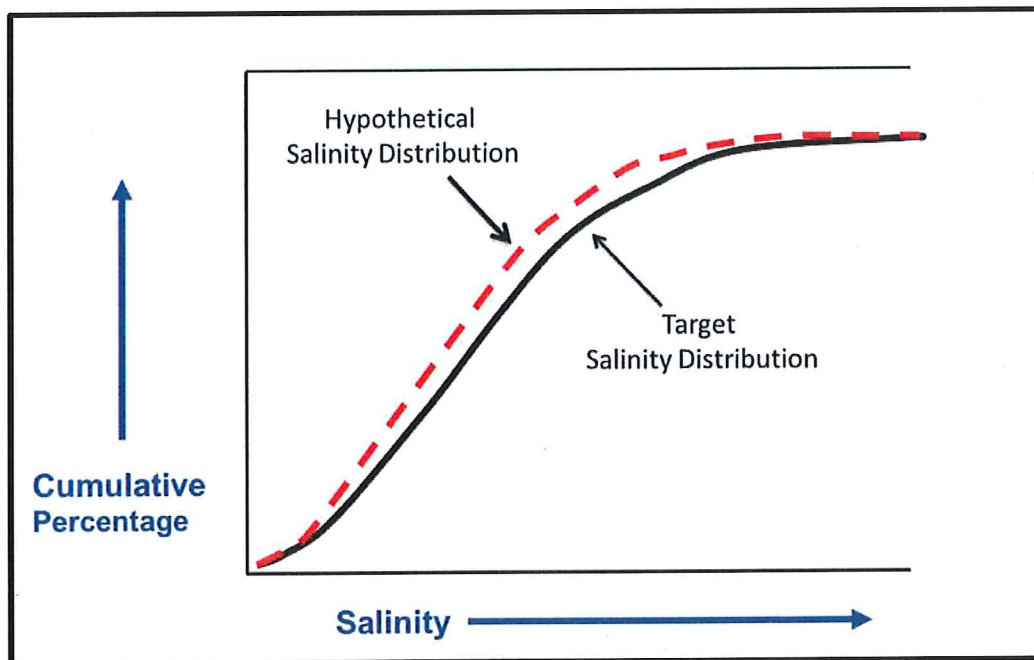


Figure 5.1 Conceptual illustration of a salinity target range (solid black line) relative to a hypothetical salinity distribution (dashed red line)

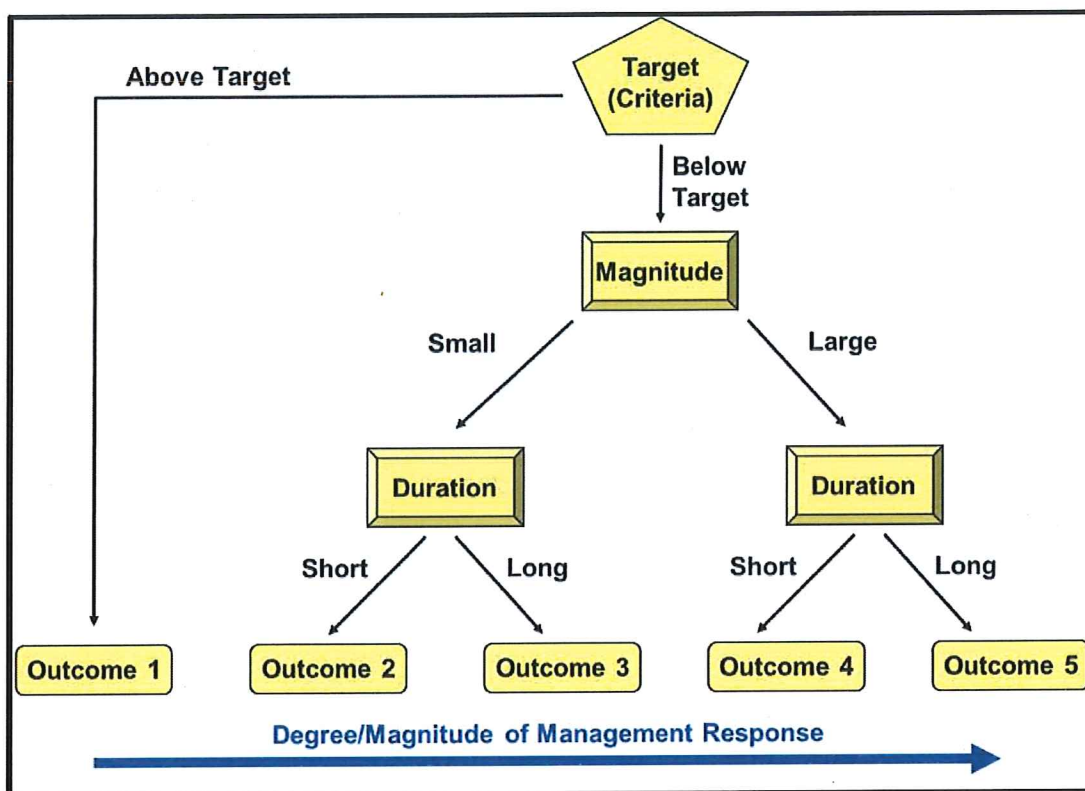


Figure 5.2 Conceptual design tree for evaluating change

Initial management actions will focus on determining if the observed deviation is in fact real and not attributable to some measurement error or an artifact of the sampling design. If the change is determined to be valid, the next series of management actions will focus on better understanding and describing the change, and determining potential cause and affect relationships. Finally, the most intense management actions may involve regulatory actions such as adjusting withdrawal schedules.

5.3 MANAGEMENT ACTIONS

A hierarchy of management actions, contained in the Authority's MRP is listed sequentially in order of increasing intensity and urgency below:

1. **Data QA/QC Audit** - This action would involve the performance of an intense QA/QC audit to determine if the detected change was the result of laboratory problems, data entry errors, violation of sampling protocols, etc.
2. **Data Comparison (Correlates)** - This action would involve a review of data correlates (e.g., specific conductance is a correlate to salinity) to determine if there is more than one line of evidence reflecting the detected change.
3. **District/Authority Meeting** - If Steps 1 and 2 indicate that the detected change is not due to quality control problems, and is reflected in multiple lines of evidence, the next step would be to convene a meeting between the Authority and the District. The purpose of the meeting

would be to review the findings of Steps 1 and 2, and to determine a possible modified course of action to refine the understanding of the magnitude and extent of the detected change. If deemed appropriate, the District could recommend additional data analyses, or a redirected and focused sampling effort to better elucidate the detected change.

4. **Redirected Sampling Effort** - This action would involve conducting more focused supplemental sampling in the affected river segments with the objective of gaining a better understanding of the detected change. The additional data collected from this effort could then be subjected to Steps 1 and 2 above if deemed appropriate. This action would determine if detection of the change is repeatable under a more focused sampling program. Although this step could be valuable, it may not be necessary for a redirected sampling effort to be conducted for all hydrobiological changes detected by the HBMP. For some hydrobiological changes, District staff could recommend proceeding directly to Step 5 without conducting any redirected or additional sampling.
5. **Determination of Significant Environmental Change** - Based on the findings of Steps 1 through 4, the next step would be to meet again with the District with the objective of evaluating whether the detected change is substantial enough to potentially constitute an adverse environmental change. This step would involve a detailed assessment of the data analyses conducted in Steps 1 through 4 to ascertain whether conditions consistent with the working definition of significant environmental change presented above have been met. A formal determination of significant environmental change would be made via a consensus of professional opinion by District staff, in consideration of technical and scientific factors only. Following this, determination of appropriate actions will be made, which may include, but are not limited to, monitoring program revision or changes to the withdrawal schedule.

5.4 DEGREE OF CERTAINTY

In the implementation of the sequence of management responses described above, the primary objective is the prevention of any adverse impacts. However, the intensity of the management response should not be the only criteria considered. The detection of any salinity change must always be framed within the degree of certainty that the detected change is real, and not solely due to chance. Therefore, the intensity of the management response should be tied not only to the magnitude or severity of the salinity change, but also to the degree of certainty that the detected change is real, and whether it is caused by Authority withdrawals. Table 5.1 below presents a conceptual matrix approach that integrates the magnitude of the detected change and the probability that the change is due to chance alone (e.g. alpha).

As presented in Table 5.1, the intensity of the selected management response is a function of both factors. If the detected change is relatively large, but the degree of certainty is low (e.g. high alpha) then a less intense management response would be appropriate. If, on the other hand, the detected change is considered to be moderate, but the degree of certainty is high (e.g. low alpha), then a more intense management response would be indicated. The application of this approach would obviously vary with the specific changes and statistical measures of certainty involved. The approach of the selected management response would also depend on whether the observed change was found to be attributable directly to Facility withdrawals or potentially to anthropogenic upstream activities.

Table 5.1 Conceptual decision matrix for determining an appropriate management response to detected salinity change			
Probability of Making a Type I Error	Magnitude of Detected Hydrobiological Change		
Alpha	Small	Moderate	Large
0.20	Data Comparison	District/Authority Meeting	Redirected Sampling
0.10	District/Authority Meeting	Redirected Sampling	Determination of Significant Change
0.05	Redirected Sampling	Determination of Significant Change	District/Authority Meeting

6.0 HBMP SPECIAL STUDIES

In addition to the regularly implemented HBMP study elements detailed in Chapter 4, special studies will occasionally be implemented to provide answers to specific questions that improve the understanding of the Lower Peace River and Upper Charlotte Harbor. Such studies are meant to be duration-limited studies designed to answer specific research questions and are not intended to be routine elements of the HBMP. Two such special studies are currently being conducted under the HBMP.

6.1 IN SITU CHLOROPHYLL TRANSECT MONITORING

Both the “fixed” and “moving” HBMP study elements (Section 4.2) have previously indicated the existence of seasonally-variable chlorophyll a maxima along the lower Peace River/upper Charlotte Harbor monitoring transect. Following consultation with District staff, the Authority volunteered to implement a special study element beginning in April 2013. This HBMP special study employs an in situ fluorometric chlorophyll a methodology to provide the type of enhanced spatial intense information needed to accurately define the monthly magnitude and spatial extent of variations in chlorophyll a patterns within the lower Peace River/upper Charlotte Harbor Estuary. Accurate spatial determinations of the relative intensity and location of monthly chlorophyll a maxima patterns are expected to provide additional information regarding the known seasonal interactions between changes in freshwater flow (relative to additions of both nutrients and color) in relation to the seasonal movement of important estuarine zones of primary (and secondary) production. An analysis of the utility of this HBMP special study, and recommendations for its future continuance, are expected to be made following several years of data gathering.

6.2 RIPARIAN VEGETATION

At selected intervals between 1976 and 2004, three different HBMP study elements were conducted to assess variations in emergent and riparian vegetation along the lower Peace River. The overall objective of these monitoring programs was to determine the magnitude of annual and longer term changes caused by natural river flow differences between extended wet and dry periods. Then using this information, the object was to assess the potential magnitude of changes in vegetation patterns along the lower river that might be expected to occur due to current and projected Facility withdrawals.

The vegetative monitoring elements of the HBMP provided information for determining relationships between vegetation patterns and freshwater flows by observing the positions of the freshwater and salt-tolerant plant communities, especially in the salinity transitional zone of the river. A permanent shift of more salt-tolerant plants upriver could be an indication that withdrawals were impacting the river corridor wetlands, as long as natural variability (drought) or other man-made causes could be eliminated.

Complete and thorough analyses of the long-term results of the vegetation studies were presented in both the 2002 HBMP Comprehensive Summary Report and the 2004 HBMP Mid Term Report. These analyses indicated that vegetation patterns along the lower tidal Peace River had remained relatively stable over long periods of time, and showed little in the way of consistent responses to natural periods of either high or low freshwater river flow. As a result, it was determined to suspend the vegetation monitoring elements after 2004, with the exception of aerial photography, which have been collected every 5 years following 2004.

Aerial photographs have been collected every 5 years over approximately the past 15 years. Given their improved accessibility, consistency of coverage and quality, the industry is moving towards satellite photographic products as compared with conventional aerial photography. Better imagery means that photographic interpretive methods have also improved. The Authority transitioned from conventional aerial photography to this format beginning in 2016. The Authority will continue obtaining the satellite photos on an annual basis. Interpretation of these photos will be completed every 5 years and maps will be produced to depict the spatial extent of the riparian vegetation in the lower Peace River.